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ABSTRACT

This set of four research reports is a product of the Mathemagenic Activities Program (MAP) for early childhood education of the University of Georgia Follow Through Program. Based on Piagetian theory, the MAP provides sequentially structured sets of curriculum materials and processes that are designed to continually challenge children in kindergarten through third grade from low income families to learn about the psysical and social environments. These four reports come from a conference on new perspectives in developmental assessment. The contribution of ethology to the assessment of education is discussed in a paper that (1) briefly overviews the ethological perspective and its methods and (2) discusses "education" among animals, and education in preliterate human societies and in industrial societies. In another paper, the importance of social forms of language use in contexts of interaction and their relevance to measurement of language competencies are discussed and illustrated with examples from Black and Jewish cultures. A report offering new perspectives on the education of the ethnically varied population of the United States advocates moving away from the melting pot concept. In the final paper the issues of validly determining a child's knowledge base are explored in terms of contradictions between children's test performance and classroom behavior. Researchers are urged to conduct task and situational analyses in order to define context variables that influence a child's ability to solve problems. (Author/RH)

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MATHEMAGENIC ACTIVITIES PROGRAM: REPORTS FROM A CONFERENCE ON NEW PERSPECTIVES IN DEVELOPMENTAL ASSESSMENT. (Title Supplied)
Charles D. Smock, Editor
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Ethology's Modest Contribution to the Assessment of Education

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University of Minnesota

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First Conference

on

NEW PERSPECTIVES IN DEVELOPMENTAL ASSESSMENT

Editors
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and
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Athens, Georgia

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Ethology's Modest Contribution to the Assessment of Education[1]

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I hope I have interpreted the intent and spirit of this conference correctly. As I see it we are meeting here to view the status of educational assessment today and to bring our knowledge and imaginations to bear down upon the numerous problems in this area. From my own narrow perspective, I see this conference, and especially my own presence here, as an occasion for invention or discovery rather than as an occasion for verification. For most of what I have to say cannot be verified but rather only pondered and criticized.

Before I get into the substance of my thinking on this topic I must say a word about the title of this paper. Today when ethology is becoming an "in" word such a title is bound to catch attention and may even elicit strong feelings of disbelief. No matter how one looks at it the title is incongruous. If an ethologist saw it he would probably find it not only incongruous, but also irresponsible. Ethologists seldom, if ever, deal with assessment in the sense of estimating someone's ability, measuring the

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[1]This paper was presented as part of the symposium "New Perspectives in Developmental Assessment" sponsored by the Developmental Psychology and Follow Through Programs, in Athens, Georgia on November 15, 1972. Thanks go to Donna Spiker, Graduate Student at the Institute of Child Development, University of Minnesota, for her assistance with the library needed in preparing this paper; to Professor Charles Smock, University of Georgia, for his enthusiastic encouragement and intellectual stimulation, and to Patty Rollins, secretary par excellence. Support for writing this paper was partly provided by Program Project Grant 1 P01 HD05027 from the National Institute of Child Health and Human Development.

effects of a previous experience, sickness, education, etc. Also ethologists seldom talk professionally at least, about education. When they do, they speak of what might be classified as education in a limited and indirect sense. Such topics as social learning in higher animals or observational learning in vertebrates are about as close to human education as they come. Hence, when we multiply the low probability of an ethologist concerning himself with assessment by the low probability of the same ethologist concerning himself with education we arrive at a very low probability of any ethologist anywhere having anything to say about any kind of educational assessment. This low probability actually is borne out by the empirical fact that it took a non-ethologist to come up with this paper.

To make matters somewhat worse, no single point mentioned in this paper can be said to be a point only an ethologist, and no other behavioral scientist would make. However, it is the peculiar cluster of points that are made in this paper that, I feel, mark it as distinctively ethological. No one but a person with an ethological view of human behavior would talk about assessing education in terms of the long range function of education itself, about humans being phylogenetically preadapted to educate and be educated, about the need to use naturalistic observation when trying to assess education, about the value of looking at learning and socialization in animals and comparing them to that in humans, and about the general value of viewing education within an evolutionary framework. It is this distinctive grouping of such ideas which justify using the term ethology.

Although ethology's distinctive feature cannot be summed up briefly, a few definitions can still be instructive. Ethology has been defined as "the comparative study of behavior" by Eibl-Eibesfeldt (1970), as "the study of behavior from a biological viewpoint" by Klopfer & Hailman (1967),

as "the science of animal behavior" by Ruwet (1972), and in other more or less similar ways by others. While the various definitions and boundary conditions defining ethology would not be agreed upon by all ethologists, there is general agreement as to what constitutes ethology's fundamental belief system: belief in the importance of evolutionary theory in understanding behavior including human behavior, in the importance of observing animals, including humans, in their natural habitats, and in the importance of relating behavior to environmental factors.

The fact that the title of this paper has in it "Ethology's modest contribution" almost sounds like an appeasement gesture as well as a way to assure everyone that nothing significant could come of intruding ethology into the world of human behavior. I hope neither is true. Modesty is justified here simply because it seems most likely that ethology's effect on educational assessment, if anything, will be largely general and more motivational than informational. But this effect is not to be disparaged if it manages to trigger off, in some small way, a somewhat different approach to looking at education and its assessment than has generally been the case so far.

Ethology briefly

As other behavioral scientists, ethologists are preoccupied with a variety of aspects of behavior. However, ethologists tend to center their attention upon a few questions in a way that is distinctive to their discipline. They ask what is the behavior of the animal like when he moves about in his natural habitat, under what general as well as specific environmental conditions does it occur, and how frequently does it occur.

They also ask what is the function of this behavior--more specifically, what are the immediate consequences of the behavior, its long-range consequences, its implications for survival. They also ask how did the behavior come to be what it is. Is it innate in the sense that it is a highly predictable product of evolution and therefore organized predominantly by the genetic code rather than by any specific learning during ontogenesis? Or is it innate in the weaker sense that it is universally present in all normal members of the species, but needs specific environmental support during ontogenesis to develop? Or is it a learned behavior in the sense that its development is not phylogenetically and genetically organized, but is directly dependent upon variations in environmental circumstances? Accompanying such questions, ethologists also ask how innate and environmental factors interact to produce a particular behavior. And if they wish to push further they ask questions concerning the neurophysiological basis of the behavior.

In short the ethologist is interested in the <u>what</u>, the <u>why</u>, and the <u>how</u> of behavior. But he differs from most other behavioral scientists in that he tends to ask these questions, within an evolutionary framework. The nature of this framework disposes the ethologist to insist that naturalistic observation of the whole animal must precede any attempts to explain or experiment with the behavior or any part of it. This insistence separates ethologists from many psychologists and has frequently led the former to take less than an optimistic view of the scientific basis of psychology. For example, Tinbergen (in Blurton-Jones, 1972), one of the founders of modern ethology, believes that because human psychology has neglected to build an adequate foundation for the study of human behavior, it "is not yet really a science". Ethologists are not alone in this belief. Williams and Raush

(1969), White (1969), and Viteles (1972) are among a growing number of psychologists who feel the same way. The lack of this foundation can have practical as well as theoretical implications. Viteles notes, for example, that when the psychologist acts as a practitioner or engages in social engineering he does so on almost no foundation of solid knowledge. The long range consequences of operating without a foundation of such knowledge should be obvious.

These writers are, in my estimation, making a very important point which can be directly applied to educational assessment. If we look specifically at a young post-school adult it is valid to say that we really do not know much about him scientifically. What little we do know about him is permeated with implicit assumptions about what he is and wants and does. Until we study him as an ethologist would a bird, for example,—that is, as he lives and behaves in his environment outside of school—it is impossible to claim we know him in any significant way. The same can be said for him when he is in school and also for the kind of schooling he receives. Only when we have some representative description of his natural behavior (not only his scores on many tests) will it be possible to determine whether school is relevant at all for his growth and education. This is perhaps the most obvious point that can be made about educational assessment. But as will be discussed later, it is a point that ultimately has to be taken seriously. Before developing this point a quick look at what may possibly constitute education in animals will have some relevance for our understanding of education in humans.

"Animal Education"

An important tenet of evolutionary theory is that any species of animal is nearly perfectly adapted to its environment (Jolly, 1972). Each

species is equipped by evolution with a number of specialties which make adaptation possible. These specialties can be in the form of very particular behaviors, like web spinning in the spider, or very general classes of behavior like acting intelligently in different problem situations as is the case with higher primates. In both instances inherited factors are operating. In the spider genetic programming is responsible for the web spinning; in the higher primates an inherited tendency to learn from experience and apply the results of the learning to new situations lies behind the intelligent behavior (v. Lorenz, 1965). Learning ability which makes possible a wide range of adaptive acts can be viewed as an adaptive specialty which compensates for a lack of inherited tendencies (such as web spinning) to perform a relatively narrow range of adaptive acts. Nest cleaning behavior in hygenic bees is a good example of a narrow range of genetically determined acts; Rothenbuhler (1964) has demonstrated that such behavior is controlled by recessive genes. Effective nutcracking behavior in the squirrel, on the other hand, has been demonstrated by Eibl-Eibesfeldt (1967) to be acquired as a result of experience acting upon what appear to be innate response schemas involving relatively crude forms of nut handling behavior. In primates the innate element in the adaptive specialty which restricts the range of acts assumes minor importance compared to the learned element. When man is reached on the phylogenetic scale the learned element assumes its most pervasive and most powerful form. In all instances of learning, though, a particular environment must obviously be present -- otherwise learning as an adaptive speciality is meaningless. This is one of the big risks animals dependent upon learning have to face. For this reason attachment during the most vulnerable period of life (i.e., when the

animal is most incompetent) as well as later bonding, cooperation and other social behaviors play such an important role in the lives of animals which are compelled to be dependent upon learning rather than instinct for their survival. Man's heightened sociability and his great need to learn in order to survive is not a fortuitous combination.

Animals depending upon learning for adaptation usually learn as a result of what other members of the same species around them do. Mother cats have been observed to bring dead mice to their naive offspring (for a "starter") and then follow up with live prey which the whole family plays with and then kills (Ewer, 1969). Still later the mother cat leads her by-now-more-sophisticated kittens off to the actual stalking of prey (the equivalent of a highschool education). Baboons must learn to tell nourishing from poisonous food by watching others; and they also must learn how to capture and kill scorpions before they can enjoy them gastronomically (Marais, 1969). And according to the observations of Jane van Lawick Goodall (1968), infant and juvenile chimps spend many hours observing and presumably directly imitating a wide range of behaviors in other chimps including sexual and feeding behavior, agnostic displaying in conflict situations, tool using behavior, grooming behavior and many others.

From these and similar observations it is evident that many species of animals (especially primates) have to learn many important adaptive skills from older, more experienced animals in order to survive. However, it seems reasonable to conclude that no education is taking place in sub human animals in the sense that the experienced animal "intentionally" teaches the less experienced animal in order to help him compensate for his immaturity and incompetence due to genetic deficits (v. Buettner-Janusch, 1967; Jully, 1972). While the chimp mother peels sticks for termiting in

in the presence of her young son, there is no evidence that she is concerned about whether he watches her or not. Nor does it seem that she rewards him when he successfully imitates her. Such concern seems to be distinctly human. Also the ability for long-range planning which is an indispensable prerequisite for education is present in humans to a degree unmatched in the animal kingdom.

Education in preliterate human societies

In preliterate societies education takes place early, frequently in situ, and nearly every time the occasion calls for it. And when learning does take place the end toward which it is aimed is frequently close to it both spatially and temporally. The young Kalahari Bushman boy watches and helps his father make hunting arrows. He sees his father practice shooting them with his bow, sees him go on a hunt and the arrows strike the hunted animal, or at least sees the dead animal when it is brought hom. There are a few large temporal and spatial gaps between the experience of arrow-making and the experiences of seeing the function of an arrow and the value it has for the community. In short, for a child in a preliterate society, the means (the education the boy receives) and the ends (the effects of the education) are generally in close contiguity with each other. The difference between a preliterate child's experience and the experience of an American school boy sitting in school learning the multiplication table is almost unbridgeable.

This difference, however, is not only in the space, time, and social relevance gaps that exist for the American schoolboy. There is another less obvious gap. Because he is continually in the presence of persons with more competence than himself the preliterate child is made aware of his

own incompetence in things that count for survival. One main effect of this awareness must certainly be an increase in achievement motivation as well as respect for the competent. It is difficult to picture the average American schoolboy having such a clear understanding of, or feeling for, the connection between learning and the heightened level of competence that results. If such a boy could realize early how important his early education is for himself and his community in the future, questions concerning the relevance of his education would never arise.

Education in industrial societies

The industrial society is partially the result of a long accumulation of vast stores of knowledge requiring an extremely complex organization of both specialized technical as well as highly general abstract skills. The inimitable complexity of the industrial society requires a highly differentiated division of labor and also a relatively great amount of time educating persons to do the labor. The net result of such a system is that a good portion of the population spends 12 to 20 years of its early life being provided with the means to handle the society's and the individual's needs. Since the time gap between means and ends is uniquely long and since industrial societies complicate themselves so rapidly it is not surprising that educational means and the ends they are to serve become disconnected. With increasing industrialization the function of education becomes less clear unless plans are made early for training in a specific job. Even then there is no insurance that the training will lead to an adequate future adaptation.

Educators themselves, especially those teaching grade and high school, are not easily able to answer the question of the specific relevance of why they are doing what they do. The Bushman father would answer the question very easily: I am teaching my boy to make arrows so he can hunt, so he can

eat. If present day teachers are asked whether what they are doing is having any effect, their answer becomes even less clear and informative. Frequently they can say nothing other than that the child made it through high school, got into college or a vocational school, got married, dropped out, was accepted into the Marines or Woolworths. This impoverished answer, while understandable, is depressing. Unlike airline pilots, hairdressers, building contractors, assembly line workers, the educator is never certain he has a product or if he knows he has one what it really is. The idea that a child is rescued by the teaching profession (which includes parents) from being a lawless, self-seeking, unsocialized, illiterate hominid - not much removed in many respects from free roaming chimpanzees - does not seem to enter anyone's mind. Few seem to realize that the pains a music teacher suffers to get the fifth grade through the spring concert is an act of great cultural significance. While the specific long-range function of education, or even of a specific aspect of a particular curriculum, may elude the educator and the educated, functions are, nevertheless, still being served. Apart from the nebulous effects of 12 years of compulsory education, there are undoubtedly numerous side effects which conspire to keep the whole educational enterprise going. Schools serve a number of very obvious non-curriculum functions- they relieve parents of the burden of having the child around all the time (which presumably results in happier, or better educated, or slightly wealthier parent), they socialize and enculturate the child in many emotional, personal, social, non-academic ways (which society tacitly recognizes as valuable), they expose the child to future mates and influence his courting behavior (which the child for the most part enjoys), they make the child's life more interesting by broadening his geographical, and social

perspectives (which the child for the most part also enjoys), and they employ many people such as teachers, janitors, secretaries, builders, plumbers, lumber jacks, publishers, textbook writers (which these persons find very adaptive). These and other functions are clearly strong enough to perpetuate the educational enterprise even in the face of weak or non-existent evidence that the ends of the enterprise, namely adequately prepared young adults, are actually being achieved.

Empirically sound attempts to make a connection between education and the child's level of adaptation afterwards appear to be very few in number. On the basis of a moderately extensive survey of research literature and of a small sampling of colleagues in educational research we have come up with a relatively few studies which have attempted to establish a connection between school experiences and curricula on one hand and post-school adjustment and happiness on the other. Our short list is obviously incomplete, but even if we have unwittingly sampled only a fifth of the existing studies, there would be less than 40 in existence. This is a small number considering the amount of time, money, and effort our country has been putting into education. Compared to the number of studies done on reversal and non-reversal shifts and conservation of substance, weight, and volume, the number done to test tht efficacy of education is ridiculously small. Of course, our criteria for selecting studies as relevant have restricted the number we finally discovered. We especially sought out studies which looked at young people after they were out of high school in order to determine the efficacy of their 12 years of education. We dismissed studies which demonstrated relationships between various <u>within</u> school experiences, grades, aptitude scores, etc. In our schema of looking at the problem, such studies

were connecting various means on short term effects with each other. They were not connecting means with the intended ends; that is, the child's level of competence, adjustment, and happiness after he left school.

Five studies impressed us as meeting our main criteria as well as a number of methodological criteria. They are worth mentioning here as examples of attempts which have been made to connect education with its outcome and as pioneers in an area of research that in our situation, must be taken seriously right now. In historical order, Margaret Willis' The Guinea Pigs After Twenty Years (1961) represented an attempt to follow up the 1938 graduating class, 55 strong, from the University School of Ohio State. Willis focused on evaluating how well these young people were making it in life. Relying heavily on the questionnaire method, she discovered among other things that all of the graduates went on to college or special vocational training, few got divorces, most were relatively autonomous and socially sensitive, and 79% liked their jobs. Most felt they could not really separate home from school effects, a good point for future researchers in this area to keep in mind. In our estimation Willis' effort is valuable in that she appears to be one of the first to get hard empirical data on post-school effects of education.

In 1962 Havighurst et al. in their book Growing Up in River City did a longitudinal study of a group of children between 11 and 20 years. They recorded everything they could get their hands on including observational data on the children in their natural habitat. Adult competence or adjustment was one of their main constructs which they correlated with such variables as social leadership, social adjustment, aggressive maladjustment, IQ, socioeconomic status, etc. Among their major findings was strong evidence

for a close relationship between family characteristics and academic and post-school environment. There was no strong evidence to suggest that anything in the school curriculum was related in any significant way to later adjustment.

In 1965 Holland & Richards in a study of 7,262 college freshmen from 24 universities and colleges correlated measures of academic and non-academic variables (the latter included artistic, scientific, and social accomplishments during college and other "real life" forms of achievement). Results indicate that the two sets of variables are negligibly related (median r = .04). Despite the large sample, the wide range of talents studied, multiple prediction statistics, and multiple socially relevant criteria of accomplishments -- all variables that work toward increasing sensitivity to detecting relationships — there did not appear to be any connection between school related abilities and what went on in the outside world.

The most ambitious study was carried out by Trent & Medsker in 1968 and reported in their book Beyond High School: A Psychological Study of 10,000 High School Students. The authors asked the crucial question: What effect does education have on high school graduates and to what use do they put education in attempting to adjust to life experiences? A wealth of data emerged both from their demographic data and from their interviews of a representative sample of the graduates. It is impossible to report their many findings. For present purposes it is worthwhile noting that while many graduates who did not go to college expressed satisfaction with their lives and jobs, many more did not express satisfaction. Even four years after high school a large proportion remained dissatisfied with

their vocations and many continued to show a lack of realism about their vocational plans. In addition, the authors discovered that college attendance and performance was significantly related to native ability, socio-economic background, parent variables, community educational opportunities, etc. It appears as if school curricula per se played a minor role if any.

The fifth study that fits our criteria is the recent study by Jencks et al. (1972) on the effects of schooling, family and other factors such as luck, upon occupational success. The book is essentially a statistical study integrating a number of the best available studies.* According to Stinchcombe (1972) who reviewed the book, Jencks et al. did the most adequate job possible with the available evidence. And on the basis of this evidence they come to the same conclusions as Stinchcombe did concerning the causes of individual success. The most relevant, and also most "striking", finding for purposes of the present paper is that the kind of the school to which the child goes (whether it is well- or poorly-endowed, integrated or segregated, attended by children from poor or rich families) is not related to professional success. According to Stinchcombe's interpretation of the findings, "The idea that aschools make a big difference is a statistical illusion." Other factors such as IQ, family characteristics, and luck play much larger roles in determining how well the child makes it professionally. What happens within school, though, plays some role in the sense that getting into a college preparatory curriculum determines whether the child goes to college which in turn has a positive effect on his pro-

*Note: This book came to my attention via a number of book reviews. I was not able to obtain the book itself in time to read it. Hence, the present discussion is based on Stinchcombe's review which, in my estimation is the best and most informative of the reviews presently available.

fessional status. However, whether the child gets into the college preparatory curriculum or not is heavily influenced by the combined effect of such factors as IQ, grades, and social background. In short, the Jencks study arrives at the conclusion that school in general, as it is now characterized in America, is not a determinant of how well the child adapts to adult life in terms of his level of professional success.

While the above five studies represent only a portion of studies linking outcome with educational and other pre-outcome factors, the evidence is clear that the role of schooling and formal education in preparing the child for later adaptation is at best unknown and at worst irrelevant or grossly inadequate. These studies were not experimental and also used a relatively restricted set of criteria to measure outcome. No study dealt with properly controlled samples of non-schooled and schooled children. If such a study had been conducted (with the proper random assignment of subjects to experimental and control groups etc.) surely there would have been significant differences in the non-schooled versus the schooled. Schooling does make a difference obviously. However, in what way it does and the degree of magnitude in which it does are current questions still pretty much unanswered despite years of educational research.

Whether such questions should be answered (or even can be answered) is a question itself which has to be raised before examining some ethological prescriptions as to what should be done. According to Jencks et al. (1972), the fact that the kind of school is irrelevant in influencing later professional status suggests an obvious step in educational policy. Effort and money should be spent on making schools satisfying for the child rather than on trying to get schools to produce a long range effect

on the child's occupational adjustment as an adult. This position, in effect, does away with the means-end concept of school and later adaptation. Such a pessimistic tone may be warranted. In light of the state of things so far, one could argue that it is impossible to assess environmental demands 20 to 30 years in advance of the child, and even if it were possible, it would be impossible to develop (let alone implement) school experiences that would adequately equip the child to meet such demands. There must be a good reason for the present lack of meaningful connections between education and later adaptation as well as for our lack of knowledge on how to improve such connections. What these reasons are, is a subject for weighty historical analysis. However, some reasons are worth noting, especially since they characterize many other disciplines as well.

One can compare the work of an educator with that of an architect, for example. Each has an idea and an obligation to build for future life. Each is also faced with two problems: of building according to theory, personal preference, financial costs, or combinations of these factors (all of which are relatively simple to conceptualize and handle), or of building according to the properties, experiences, demands, and problems of those people who are going to live with their products (all of which are complex, ambiguous, and often contradictory). Since the latter is such a difficult problem, it is no wonder that theformer has tended to be the norm in both enterprises (v. Robert Venturi, 1966, for an excellent discussion of this problem in architecture). It is safe to say that education has been influenced by theory, personal conceptions, and problems of finances more than it has been by the nature, problems, demands, and experiences of young people when they grow up. According to Venturi, much of recent

architecture has been influenced in the same way; building design has conformed more to ideas and esthetic preferences than to the characteristics of the people who have to live in buildings.

While Jencks' suggestion may be well grounded in present reality, there is no reason to believe that such an instant solution (e.g., paying the poor instead of changing education) would either last or avoid creating even greater problems. As for the difficulty in predicting post-graduation problems, in my estimation, it is not impossible to anticipate many major adaptation problems most children will have to face as young adults. While specific problems must be determined empirically for particular segments of a generation, it takes no more than a knowledge of history to guess what the major superordinate categories of man's current problems are. Man's experience does not change radically every generation. Ancient Greek drama, the work of Thomas Aquinas, Goethe, and Karl Marx are sufficient evidence of that. Jencks' pessimism about predicting future adaptational requirements suggests either an intentional disregard of history for ideological purposes or lack of awareness of the historical and biological continuities that condition and guide man's progress. These continuities do not render innovation or novelty impossible; there is always the unforeseeable. However, dimensions of the unforeseeable that threaten survival must be identified so attempts can be made to avoid them.

The value of Jencks' empirical conclusions and proposed solutions is that they point out forcefully that present education is not adequately connecting with its supposed goals. It does not necessarily follow, though, from his findings that the behavioral sciences should be abolished. One can just as well argue that work in the behavioral sciences should be inten-

sified. This can be done by placing upon behavioral scientists the burden of coming up with a clearer picture of what the effects of education on adult adaptation are as well as what adaptations are required. Only when we have a clearer picture than we now have, will it be possible to take the necessary educational steps to improve such adaptation. Not to do either is to be inhuman in the sense that it goes against one of man's most distinctive and important features, viz., his need to learn and to continue learning in order to survive in an environment which he is continually changing. The ethologist can help in obtaining a clearer picture of what adaptation involves.

Some ethologically guided suggestions

Ethology can not offer simplistic solutions to the problems of assessing education, but it can offer some broad conceptual attitudes and methodological orientations. It can also reinforce current trends in non-scientific disciplines which are nevertheless aligned with its basic concepts. An example of the latter is the recent concern expressed by liberal arts scholars in a collection of essays edited by Booth (1967) in The Knowledge Most Worth Having. The various writers attempt to analyze what a student should know in order to be fully human. Knowledge is viewed in terms of its function, i.e., as a means to an end (as well as an end in itself). As would be expected, there is no unanimity amongst the various essayists as to what is most valuable other than that a liberal education, perhaps more than anything else, is most worth having. The importance of the book, regardless of its conclusions, is that the question was asked and competent people seriously tried to answer it.

The book raises two related questions. Is the assessment of the various authors valid in the sense that they have accurately identified

current needs not met by education? And would the conclusions of the book have been the same if the essayists had been construction workers, hairdressers, policemen, accountants, career soldiers, housewives, and farmers? The answer to the first question is not easy to come by; it is an empirical one that can be answered with no little difficulty if anyone wished to do so. The answer to the second question is likely to be "No" for most of the professions listed, although there may be a "Yes" here and there. In either case, it is evident that there is not enough reliable knowledge to answer the questions adequately. Empirical research into the problem of adult adaptation and how education should help prepare for it has simply not been systematically and seriously undertaken.

The ethologist can make his modest contribution by insisting on two things: one, that the consequences and possible functions of education be considered before condemning, changing, or abolishing current educational practices or before introducing any new practices, and two, that naturalistic observational methods be used more heavily to study both the consequences of education and the environment in which they become a reality as well as the process of education itself.

Consequences and functions.

It is a banality of the first order to insist that those working in education and assessing its value keep mindful of the final goal of education and that if it is difficult to depict the nature of this goal, make urgent attempts to do so. If one looks at the mass of educational practices and the volumes of research literature, it becomes evident that goals are not primary in many people's thinking. Aspects of the educational process which are internal to it and unconnected to its final goal are centers of much more concern. While it is obviously important that what happens to

the child in the first grade influences what happens to him in the second and so on, it is more important what happens to him when he is no longer in any grade. The connections between the various grades are meaningless if there is no final connection with the final purpose of the grades combined. On the surface this may sound like a trivial comment, but one only need look at the vast amounts of research literature which interconnect countless measures of within school variables with each other to realize that what happens outside or after school plays a relatively minor role in school research. Such a state of affairs cannot continue to be ignored. Society is justified in asking for the relevance of knowing that sociometric ratings in the third grade correlate with variables x, y, and z in the fifth, which in turn are somewhat related to language aptitude in first grade which in turn has a small but "significant" relationship to mother's teaching strategies as they interact with social class in a two-person, timed animal picture sorting test carried out when the child is four-and-a-half years old. It is recognized that such measures are much more convenient, immediate, and less expensive to obtain than measures of educational outcome. Some of them are probably not totally irrelevant for outcome, but we do not know this for certain. Nevertheless, it still seems very justified to emphasize outcome much more in educational assessment than has been the case so far.

Requiring such emphasis is in line with a growing trend for greater accountability, not only from producers of material goods to the consumers of such goods, but from any program aimed toward the social good. In 1969, Senator Mondale from Minnesota introduced the Social Accounting Act to provide for an annual social report to the President to inform the nation of the effects of federal programs on the quality of life in America. This

Act represents a public awakening to the great need to connect the well-meaning, highly subsidized activities of social programmers with the actual consequences of their activities. Why it took so long for such an idea to take hold is anyone's guess.

In regard to educational consequences, the ethologist can offer more than exhortation. Other more substantive elements are inherent in his approach to behavior and its function. As noted earlier, the ethologist finds it meaningless to view behavior without reference to the environment in which the animal lives. In viewing an educated human, the same would hold true. Consequences of education are relevant insofar as they reveal themselves in response to environmental challenges and supports. Hence, any assessment of education would perforce require an analysis of the nature of the relationship between the educated individual and his environment, not only an analysis of the response capacities of the individual alone. This requirement is especially appropriate if these capacities are measured in terms of variables for which there is no known connection with the various ways the individual actually copes with the problems found in real life. Relevance cannot be measured in any other way. High school home economics courses can have direct transfer to real home economic concerns, and many of them probably do, but it is probably a rare teacher who actually builds the curriculum around real home problems, and then follows up her students to see if they can actually cope better with these problems because of having taken her course. Theory and practice need not be separated by teaching.

A second element the ethologist can insist upon is that of the ethogram or "total picture" of the individual. It is dictum of ethology that all (or nearly all) parts and functions of the animal are interrelated in one way

or another. Partitioning the animal's behavior is only an epistemological and practical research convenience. Sooner or later, as more parts are explored and their functions disclosed, the animal has to be put back together. This idea of trying to understand the whole animal obviously holds true for educating humans. The whole human has to be the concern of those who educate him and assess his education. Historically and currently this has not always been the case. A popular alleged violation of this need for the whole, for example, is in the realm of the post graduate's feelings of happiness and of personal sense of value. Educational assessment, rightly or wrongly, has been accused of neglecting to help young people achieve both these goals when they become adults. The ethologist's aim for the total picture would require him to expand his customary emphasis upon overt (non-verbal) behavior and turn to reports of experience (as well, of course, behavioral signs of it) as also possible indicators of level of adaptation. But he will insist that these reports be evaluated in the light of behavioral observations rather than stand alone as has frequently been the case.

The final element concerning educational consequences is a value-ridden one dealing with what substantively constitutes such consequences. The ethologist, as any observer, must have ways of categorizing consequences in order to measure level of adaptation. The source of these categories will, for the most part, be outside of his customary realm of discourse. He must turn to observers and interpreters of human behavior and existence just as he would to those who studied the species of animal before he comes to be interested in studying himself. Among such observers would be persons whose speciality, for example, has been in the area of personal adjustment, happiness, and fulfillment (persons such as Allport, Erikson, Fromm, Maslow, May and Menninger) or in the area of educational, vocational and professional

adjustment (persons such as Goodlad, Conant, Brickman, Lehrer, Cremin, and Barzun). The ethologist's job would be to envisage the empirical realities of their concepts, searching out ways to operationalize them more fully, rendering the more instrumentally efficient, and validating them against each other by testing them in the field. His guiding principle would be in the form of some pre-established concept of what constitutes adequate and inadequate adaptation in the present social and physical environment of his target population. This concept would include in it ways of relating adaptation to measures of competence and happiness obtained for each individual. While his concept and the subsequent selection of behaviors he looks at would be based on arbitrary decisions, his arbitrariness would be guided by frequency considerations as well as by consensually (publically and professionally) validated norms of what constitutes adequate and inadequate adaptation. Obviously there will be value judgments involved, but no more than are tactically being made daily by educators, social reformers, and politicians who establish and run programs to better the health, educational, personal, social, and economic status of persons judged as needy. The ethologist, however, can afford to be more non-judgmental and less involved with his subjects and their doings because his investment is not in influencing their behavior, but in describing it. This posture on the ethologist's part is very different from that of the educational reformer. The ethologist's first allegiance, unlike that of the educational reformer, is only to the canons of the scientific method, not to a particular philosophy or politics of education. It is the ethologist's obligation to make the scientific method, as he employs it, explicit so that his peers in science (as well as the informed public) can judge the ways he went about organizing, obtaining, and

interpreting the knowledge he acquired. In short, his enterprise is fundamentally epistemic rather than social or political. His descriptions of the consequences of education will be subject to such criteria as correspondence to observable (not inferred) reality, degree of comprehensiveness, and frequency distribution, as well as meaningfulness as defined by the target segment of the population described.

Naturalistic observation

In addition to insisting that focus be directed to the consequences and functions of education, the ethologist also insists that the primary method be predominantly naturalistic observational. Historically, as already indicated, the predominant method to evaluate education (as well as aptitude) has been in the form of paper and pencil tests and questionnaires and to some extent interviews. Our knowledge of the extent to which measures obtained from these methods correspond to actual behavior in real life situations has been close to nil primarily because there have been relatively few measures of the latter. While there is nothing inherent in the ethologist's method to exclude non-observational methods (indeed, as noted above, he would have to acknowledge verbal reports of experience to remain true to his dictate that he must study the whole animal), the ethologist is more convinced that studying the animal in his own environment as unobtrusively as possible will lead to more generalizable statements of his behavior than any other method. Captive humans --the whole fourth grade class--like captive animals, may or may not respond in a manner representative of the way they normally respond to everyday situations. There is no question that laboratory studies may reveal deep and special competencies that have relevance to adaptation outside the laboratory. But as with paper and pencil tests, such studies, in

the ethologist's mind, have limited value unless they can be compared with studies done under natural environmental conditions.

There are obvious pros and cons for both non-naturalistic and naturalistic methods. The former are generally far more economical in terms of time and money, easier to carry out, and frequently very instructive about certain realms of human existence and ability. On the other hand, they may have little relevance for the bulk of the individual's behavior outside of the testing situation and may, at worst, actually be misleading. The latter are relatively expensive in terms of time and effort, frequently awkward (if not impossible) to do properly (i.e., without being detected), and highly dependent upon the kind of response categories and organization used. On the other hand, naturalistic observations and their resulting descriptions, (as Darwin, Piaget, Lorenz, Tinbergen and others have shown) can make an irreversible contribution to our knowledge. If done adequately, they have the potential of constituting the most exhaustive and valid description of a segment of natural behavior possible. While it is an unwritten (and popular) aim of much of scientific effort to raise new questions and restructure old ways of looking at things into exciting visions of things to come, it is also the aim of science to disclose and make evident natural phenomena in such a way that questions will be answered and research areas will be exhausted of their novelty. Increasing familiarity and reducing certainty are no meaner achievements in science than increasing novelty and expanding the realm of the unexpected.

The first aim of the ethologist in assessing education would be to make adequate descriptions of post-educational youths and their interactions with their environment (here education refers to formal grade school, high school and college education) as they enter into the stream of adult living.

This is a big order, but without these descriptions, which can be as broad based as possible in content and which can include verbal reports as well as naturalistic observations, it is impossible to begin assessing which educational experiences are relevant and which are not. Regular home interview-questionnaire visits coupled with periodic observations when possible, observations on the job, at social gatherings, etc. can be combined with various forms of participant observation, if necessary. Terman's (1947 , 1959) classic follow-up study of the gifted shows that such an approach is feasible. It is not possible within the present space-time limitations to develop the methodological aspects of this approach any further. The main point is that there must be as valid and as definitive information as possible on the post-educational individual before any steps can be taken to understand the antecedents of his behavior and his level of adaptation.

The use of observational techniques also would obviously have to be extended to the child in school, not only to verify the kind of curriculum he is theoretically supposed to receive, but also to help identify the many, unintended, unknown and often subtle, persuasive ways in which he is educated and socialized. Here, as in the post-educational life of the individual, the observational approach would be used to amplify (and correct if necessary) the more conventional techniques of measuring school adjustment, achievement, etc.

It is when the "ethogram" of both post-education behavior (and environment interaction) and during-education behavior is completed that meaningful statement can be made relating the latter to the former. There seems to be no better way to assess education.

Conclusion

The belief underlying the present thesis is that there is a great need for a conscious and coherent approach to understanding the relationship between education and its consequences. The argument that this relationship is so complex it is impossible to understand, is well-grounded if one views the matter in terms of the last fifty years of research techniques and theoretical orientations. The argument is much weaker, however, if one views the matter in terms of the present research potential inherent in the behavior sciences. There already exist the ideas and technical know-how to make a more meaningful assessment of education than has ever been the case. But these ideas and technical skills are scattered widely across disciplines. They lack a unifying purpose and idea. Ethology can help contribute to this unity, but any serious attack on the problem will require the collective ideas and efforts of a wide range of disciplines. These disciplines, especially educational and general psychology, will have to relinquish some of their concern for internal matters of standardized testing and experiment and adopt a more open attitude toward everyday practical human concerns. These disciplines also will have to recognize that the external demands made upon the educated person require an understanding of that person in his non-educational environment.

Both education and our knowledge of education and its effects on people are means toward greater ends, namely happy, individually creative, and socially productive adults who can do the jobs they and society set for themselves. Unlike other animals, humans require massive preparation to conduct their affairs in an adaptive fashion. And they also need a sense of the relevance of such preparation. The quest for this relevance is the

quest for a connection between the long years of preparation and its final goals. The job of science is to provide educators with the ability to discern what is effective and what is not in bringing about the goals for each individual. Not having this ability to discern is a grave weakness in man's ability to meet his special future.

Discussion

Pollack: Your comments raised the question: "What do you do about graduate students today?" Obviously, the best answer is "as little as possible, by way of forcing them to do as much for themselves, by providing a kind of atmosphere." Maybe that's part of the answer to the whole problem - that education is the process of learning how to play. Learning, not just at the end, to handle the problems of "real life," but to be able to detach oneself from the realities so that one manipulates them in symbolic, cognitive fashion or play games of organizing possibilities. This kind of mastery, to me, is the joy of the whole educational process; maybe that's part of what doesn't get across in the dead-seriousness of the education industry.

The other thing I want to mention is that no matter what kind of method you use, the data you get are going to be manipulated and influenced by the particular observational method; that holds no matter what science you want to go into. J. Robert Oppenheimer made that quite clear many years ago, that even in physics the phenomena you observe are dependent upon the method of observation; and ethologists, no matter how detached, will bring with them an implicit, theoretical structure, a way of making judgments, etc.,

that will structure the data that they get. But I think there is a way of partially getting around it, by controlling someone or just by the multi-level kind of approach, by having people with many different viewpoints study different aspects of the thing. It's still going to require somebody at the end to synthesize the product and it may well be that the synthesizer has more influence on the problem than the people who brought in the data.

Baratz: I would like to make a few comments: I think one has to make a distinction between schooling and education. It was not clear that it really is a dichotomy, other than to say that other things were going on outside of school. I think, for example, that your functions of what schooling are, and you've listed seven which you would find, are very effective in meeting those goals by any evaluation process. But, indeed, the school system as a formal institution of effective. When you get into the question of confusing the school system and its functions with education in general, in terms of adaptation as you were talking about for animals, I think you're blurring lines. It becomes most clear when you go back to the discussion of an individual, in terms of "educating" him in tutorials, which goes right back to that primitive man and his society where there are no formal schooling institutions and where the education is consonant with what we would call schooling.

Secondly, in terms of your discussion about what's commonly termed the "interdisciplinary approach", - you used multi-faceted - a colleague of yours at the University of Minnesota, Harvey Sorrels, has written an excellent paper of an anthropologist's view of interdisciplinary research which gets exactly to the point of what an "observable" is and how, when six social scientists from different disciplines sit down and talk together about

environment everybody thinks he understands everybody else but, indeed, each discipline's concept of what environment is, is different, and indeed, it may turn out there is a super-structure in terms of how you ultimately function in an interdisciplinary setting.

I think we have to separate schooling from education and I don't think necessarily the main goal of schooling is your statement of adjustment and happiness, historically or even contemporarily.

Charlesworth: Well, maybe it was in the beginning. I was trying to make it clearer, that a man can't make it without cultural transmission of information because he doesn't have it in his DNA, and so he is, by his very biological being, an animal that is going to be educated and educate. It's an inevitability kind of thing, and therefore education serves that function in making up for this genetic deficiency.

Baratz: But that doesn't have to do with schooling, does it?

Charlesworth: Well, I think schooling is an attempt on the part of society to do this in some formalized way, but I don't think they're clear about what's going on. But that's a civilized society's way of structuring this and saying who's a teacher and who isn't. In reality, I go along with you; the child learns all kinds of things at a different time and I think that's what we have to become explicit about. I should say that once you get an idea about what's going on at the end, then the thing is to get ethological in the school, in the classroom, and see what's really going on. And that is not on the basis of what people say, but on your observations of how children are interacting with teachers, etc., and whether they show any evidence of problem solving and so on. There are these big gaps in our formalized knowledge about what's happening.

Nimnicht: Maybe this is where you want to ask the question "what's the role of the school within the total educational program," and it seems to me to reinforce some of the things you said. You asked the question "what is the child being educated for?" My response is, certainly, that the schools are not educating the child for something outside the schools. It's an internal circular kind of thing, and I think goes back to two basic problems. One, is a comment I once heard where someone said, "Certainly, all psychologists are intelligent, they're the ones who get around to defining it first." And that ties in with the point I want to make: certainly all educators are well-educated because they're the ones who got around to defining it first, too. So you have a circular system where psychologists defined intelligence, and the educators have bought it and built a system; is is completely circular and it serves a small function in the total educational process.

Another kind of comment that I want to come back to, about the functions of the school: I would be relatively happy if the schools were serving to entertain the children; that would be a worthwhile goal. My son once commented that he makes the comparison of schools being more jail-like than entertaining. The notion is that you have to be at a given place at a given time; if you're going to move from one place to another in the institution you have to carry along a slip of paper that's subject to inspection as you move from one place to another; if you're going to be visited by anyone from the outside, that outside person has to check in and get permission to visit you in whatever cell or classroom you happen to be in. This comparison is not too bad, so my feeling is that they're not that entertaining. I think it was interesting when you went on, then, and made

a comparison between graduating and going to the Marines or to the University of Minnesota. It struck me that that also was, maybe, appropriate, not that I'm picking on the University of Minnesota as a separate institution.

One other point and I think it's a crucial thing: psychologists have lost not only what ethologists have to say but I think also, what people like Warren Anderson, who did a paper on autoelic folk models. It was pointed out that in any primitive society or in any society where people have designed games and activities that help the young learn important things that they later have to do in life, that they can show a degree of risk or failure in order for society to tolerate the rewards and for the learner to tolerate the failure that's involved. If you were to observe, you could not see that the person who had designed the game was attending anymore to the learner than the mother chimp was attending to the young as they skinned the bark off the tree. But if you analyze this whole notion of play as they have, you would see how it was structured and how the rules were built; they were built to help people learn to hunt before they go hunting, or to make the arrow before they go out on a hunt.

Shantz: Part of what was pointed out is something that has been said for sometime about education or schools, in general: that we're answering questions that nobody's asking, not only at the elementary level but right up through college, for those of us who are educating at that level. One of the questions would be, "How do we begin to determine more clearly what the questions are that the learners are asking at various ages in the educational process, as one method toward understanding what's going on in the classroom?" In other words, I think our predilection is to come in as unbiased as possible, with an observational method, and we try to hook up what we think are the on-going stimulus-response sequences. I guess I'm too much in agreement with

Brunswick, but maybe we will be closer to the goal if we, as observers, drop the myth that we are going to be able to work up category systems by which we compartmentalize our observations, but instead try to understand the environment from the child's point of view; what he responds to, what he abstracts out of the situation. It seems to me that somewhere along the line, someone's going to start classifying and making some value judgments and if we're really going to take the observational method seriously, I think we have to think about what we, as scientists, at this point in our knowledge base, can do in categorizing or whether it would be better to look at the observer in the situation; that is, the child or the learner and see what he is responding to.

Charlesworth: What I have been saying is at a very primitive level, but we have preconceptions of what constitutes a good learning situation. I think one of the prevalent ones today is that the child is enjoying it. I have asked a lot of colleagues about what would be a good classroom. The response is, "The kids are enjoying it." My answer to that is, are those who are enjoying it learning anything? And that they don't know. We may have confounded education with entertainment or enjoyment. At one time it was confounded with whether a child was sweating and being tortured in class; then he was being educated. Now, if he's being tortured, he's not being educated, he's being hurt and if he enjoys what he's going he's going to learn it. And I don't know what the answer is. In that sense I think the ethologists say, "All right, we're going to have classes where they enjoy and those where they don't, and this kid takes everything seriously and this kid takes it as a lark, and so on." Now, okay let's look at the outcome: does this kid think better? If you want to use that as a criterion. Does

he think independently? Does he use thinking consistently when he faces problems? And now let's look back. Did he enjoy it or did he find it painful? My sneaking suspicion is that half of them found it enjoyable and half of them found it painful. Okay, now if that's the case, just look at the irrelevance that we will bring in to our concerns for making it enjoyable or painful. We have all these tacit connections between what's going on, when we are teachers, and what's happening to the child. These are tacit, but they operate, they guide our behavior. A good example is: guys come out of a class and say, "Boy, was that a great lecture, that was really great." Then I say, "What did he say?" "Well, I'm not sure, but he was really good." --that kind of inarticulateness. Now, one criterion for learning is memory-- a little bit of it. "I didn't remember anything, but it was great." Or the faculty member coming out after giving a lecture -- I remember doing this after giving a lecture on Piaget, a great lecture on Piaget -- I walked out really feeling good. A student came up and said, "That was very interesting, but what did you say?" I thought, "My goodness, what a case of egocentrism on my part." For my colleagues I think it may have been good, and for me, hearing myself piece Piaget together in a coherent way for the first time it was a great achievement, but the students didn't know what I was saying.

Okay, now, you get it on both sides and I think you've got to get some disinterested observer in there just marking down, "kid's happy, kid's said, kid shows evidence of comprehension, what he does," and so on. Okay, now let's see what the kid does with it later on. I hate to think that some of these things are irrelevant, but just from talking to people about how painful or pleasurable a lecture was and finding out the variability in their responses, I think maybe they weren't relevant in any general sense; for a

particular individual they may be, but not in general sense. If that's the case, I would argue that for an individual treatment, some kids may really need to be leaned on and forced to think: "You have to write all the exam questions for this course, and I'm going to evaluate them." Others can't work that way; they much prefer to hear you for awhile, and so on.

Baratz: If one could conceptualize socialization of the child - maybe I am using the term socialization in the same way that you might use education - and one observes the mother interacting with her child, or even the school system on some abstract level, they're not really interacting with the child on the "moment where he is."; the socialization process is always involved with the projection of what the child will be. Now, given that, it is very difficult to determine what's relevant at any moment because you're allegedly dealing on a future plane and the kid is interested in relevance at the moment.

Charlesworth: Well, I think you've got to infer a plan behind the mother's behavior if you find that she's doing things that are not directly related. For example, she washed the diapers, every time. The child's behavior is not influenced, the child isn't influenced at all. The mother whowashes the diapers every time without any immediate effect for the child is acting as if it must have some significance; you would make an inference that there is some kind of a plan behind that. In other words, you will see her do things with the child immediately, for example pacify the child, where there's a direct effect. And you'll see her do alot of other things that have no immediate effect. On the basis, and especially if it's consistent, you can infer that she's operating more in terms of both the immediate stimuli than some kind of cognitive plan for the future. And then if you can connect these,

you can find the reason for it either by asking or by seeing what the ultimate effect is; then you're pretty certain that she's operating with these projections. With the animal world I don't know what you can do; let's say the male animal marks, with his urine, territory and you find, well you know, "what's that--he just went to the toilet"; but then you find it has a certain plan to it, and then you find that other animals come up to that place and sniff around and go away. You can't say he had a cognitive plan for it, but that's alot different then when his urination is not systematic or organized.

Meyer: I would like to make a connection between Carolyn's remarks and some of the data Bill reported. About ten years ago, I collected some data in which we just asked kids, "If you could ask any five questions, what might those questions be?" This is certainly not direct observation, but it's really not quite an interview, either. We did several sorts of analyses, but what's relevant here were the numbers of questions that we had in a category called "social concerns." You find that little kids just don't have very many about themselves; but when you get on into the senior high school everyone will expect that I'm going to say heterosexual relations are the major concern. Well, that happens, but not nearly to the degree that questions of the type: "What will I be doing five or ten years from now, where is my place in this world?" These are kids, incidentially, that are largely not looked at; they're not going to go to college, most of them (only about 20%). It seems to me, in part, that that question really never gets satisfactorily answered, and, there is no resource in the school even to answer that kind of question. It's always been curious to me that those resources are in those schools where 80% are going to go to college. If the student goes down and says, "What college is for me?" the counselor probably

looks at the SAT scores, and that's probably 90% of the decision variance, or some other kind of question, such as, "Do you like big schools or small schools?" Even there for the college-bound kids irrelevance is true, but it's better apparently than what exists for the rest of the kids, and the rest of the kids are really the majority. These data, incidentially, were recently replicated by some colleagues, so over a period of over 10 or 12 years kids are still asking the same kinds of questions. They don't know what they're doing in their senior year except as the TV commercial says, "If you graduate you're going to make, in the next fifty years, $80,000 more than if you don't." But it looks to me, from our data, that this wears pretty thin as a response, because who knows if he's going to make that amount or whether he's going to be happy doing it?

One other related point is the incredible turn over in places like Ford, GM and Chrysler, where a guy gets on a line and it's incredibly horrible so he leaves line A to go to line B and he gets pretty unhappy. I think that's partially the explanation for such weird things like speedometer cables that don't exist in new cars and coke bottles in the doors and little notes that say, "You found it." I think the ecology of what the schools are doing is simply not looked at. There's a book that compared two high schools in Bethlehem, Pennsylvania, literally one on one side of the river and one on the other. Its educational programs were identical, but the one on the north side of the river was turning out the 80% who go to school and the one on the south side of the river was turning out only 20%, and they were identical programs. You can always say, "Well, those were rotten kids on the south side of the river."

Smock: It's interesting to me, and I'm not sure whether it comes through clearly yet, but the evolutionary perspective, the concept of adaptation,

and considering the institution of education from that point of view, will require a profound rethinking about that whole institution, as well as the assessment of school effects on developmental processes more generally. I'm not sure, but it seems as if what has happened is that like most institutions or structures, the school system was created to serve a particular adaptive need at a particular time. The trouble with the human is that he continually constructs and reconstructs his environments, puts in new tools and new things to do, and pretty soon an institution no longer serves, or is not necessary to serve, the same purpose. We can, for example, look at the population schools now serve, in contrast to 100 years ago; that is, it may be that 100 years ago the school as institution was quite a viable, societal structure. When you look at the criticisms of education, we find things like, "Why doesn't Johnny read?" or "How good is his MAT score at the end of the third grade?" The critics in education generally are bound up in the system in a way that they haven't thought about, in general, these fundamental problems the institution is serving. We know it isn't; we all sense that it isn't. But what do we do about it? We all say, "Well, why can't Johnny read?" Which is a trivial question.

Meyer: I'm much more careful now about blanket condemnation of the schools: they have survived. One of the problems, I suspect, is that they continue to survive in the form that they have, in part, because they do serve that segment of the population you might call "academically oriented." One could see it as self-serving, and in a sense that's where the power probably lies. But that disturbs me, because that isn't really where the power lies numerically. The system on the south side of the river in Bethlehem is no different from the north side (there are more people on the south side) and

yet they're convinced more than the people on the north side, I suspect, that it's the greatest thing in the world. They say it's "Great!" But it isn't great. You look at the products that come out of the system and wonder what we are doing.

Smock: Their adaptation is quite an understandable one: they came through this system and achievement is a responsibility of the child not the teacher. They spent some time in school and they are taught when you do not learn, it's your fault. And it only takes about four years of that to convince an individual it's "my fault."

Meyer: Again, you have to come back to the ecology that they went through. They could quit in the sixth grade because they were "adults"; there was a job out there. East Syracuse used to be the hub of the New York Central railroad. Now its all been sidetracked, so there are no jobs. Now a very interesting phenomenon is occurring in east Syracuse. Twenty-five or thirty years ago nobody was really worried about the kids in this particular school so they dropped out in the tenth grade: that was anticipated. They went out and they had jobs tying up the ties and working in the freight yard. Now they don't, and all of a sudden everybody is very upset about the lousy education in that community, in that particular school. I went back to some of the old data of 20 or 30 years ago; kids aren't any worse today then they were then. The difference is that there are no outlets; there's no place to go, so suddenly no one knows what to do. The thought of modifying that system and that program hasn't occurred.

Smock: I think that the solution may not be a new program in the school, but things for kids to do outside of school who don't want to go to school.

Meyer: And jobs.

Smock: That's what I mean.

Charlesworth: Yes, the whole economic system is tied in here obviously, and I think a good example is how elaborate and how pretty our environment is. You don't have to travel too far from America to get the impression that America is not a very pretty country. I think, for many reasons I guess, you go to history and study the pioneer country, and aesthetics comes after survival and all that. Here we have all this young talent, artistic talent and so on, and talent to develop skills. I know young people who say, "Look, I'm going to be a potter." Now why should he struggle all his life as a potter? Why can't a potter become significant in American culture? Why can't a mural painting become significant? Why can't we be more baroque and enjoy the beauties that are resulting from this talent? We haven't got ahold of that yet. One example: somebody described a meat market in Berne, it was simply fantastic; they had this pig dressed-up which looked like a ship; it was really a work of art. Why wouldn't anybody here do it? Because they're not going to get paid, that's why.

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When Do We Know What a Child Knows?

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First Conference

on

NEW PERSPECTIVES IN DEVELOPMENTAL ASSESSMENT

Editors
Charles D. Smock, Rodney R. Cocking
and
Carolyn U. Shantz

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WHEN DO WE KNOW WHAT A CHILD KNOWS[1]

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The title of this paper may appear facetious. It is serious because it forms a basic question for research in developmental psychology: namely, the question of valid determination of a child's knowledge base. The answer is difficult enough when asked in regard to adults, but when asked for children, the problem becomes more complicated. The additional complexity resides in the fact that the frame of reference for interpreting verbal and gestural messages among children is not the same frame of reference that is applicable for adults. For adults, a common level of discourse within a common level of meaning is shared. Although differences in shared meanings exist among adults and lead to communication problems, the probability is that the amount of overlap in consensual meaning between adults is significantly greater than that between adults and children. Piaget (1970) and Werner (1948) for example, each in his own way point out that what a child says or what the child does is not necessarily a veridical reflection of what he knows. Freud (1938), from a different perspective makes a similar assertion, particularly in reference to distinctions in meaning of words or events due to psychodynamic factors such as coping with anxiety. If these writers, each in his own way, is correct in his basic assumption that there is a discrepancy or a potential discrepancy between the child and the adult's communications, then some very important and profound questions arise for education and for the assessment of competence of young children. The question becomes

[1]The research reported herein is supported by the Office of Economic Opportunity, Grant #CG8547. Dr. I. Sigel is Project Director, Dr. A. Secrist, Research Coordinator, and Dr. G. Forman, Curriculum Coordinator.

particularly relevent when put in the guise of our understanding of cognitive development of children, for our very theory and its validation are dependent on a veridical data base.

At issue, is not what the child knows: the issue is what do we believe or think the child knows. We have at least two ways to determine whether or not the child's behavior or knowledge is congruent with our expectation of that knowledge; the first is the overt behavior of children as we observe it in varying settings with little or no direct communication between child and observer. Here we rely heavily on inference to comprehend the "message". The second is direct interpersonal communication (verbal, gestural, graphic or written) which includes the language, its structure, and meaning. In effect, the utilization of an array of communicative acts expressed in various modalities becomes a major source of data offered by the child.

Before proceeding to an elaboration of the above, I would like to propose as a preliminary step introspection by the investigator as a means of developing some empathy when it comes to analyses of a respondent's behavior to and in evaluation situations.

I would like to postulate the following ways to get to know about children and the experience. The first is what one might call introspective ethology, a term coined in informal discussion by William Charlesworth. Introspective ethology derives from the fact that we can introspect in terms of our own behaviors, of our own actions, of our own intentions. Further, we can reflect on our own experiences, and relate them in various ways - to outcomes, to new situations, etc. Using oneself as an informant

for possible responses to situations of others may yield meaningful data. The legitimacy of this type of advocacy rests on the basic proposition that humans do share certain common response tendencies by virtue of being members of the same species. The range of behavior and response capabilities are probably finite. We are all capable of anxiety, anger, love, excitement. We are all capable of some kind of reasoning. We all have experienced success or failure. It seems reasonable to assume that for all of us there are certain common shared response capabilities and the ranges of responses or attendant feelings, attitude and actions overlap among individuals. In fact, is this not basic to our conception of psychology as a science? The point will become relevant later, but just for now think of how any of you reading this must have felt when you were given an I.Q. test, either in a group or as an individual. What kind of feelings did this generate in you? What kinds of feelings did it generate that you feel or felt were relevant to the outcome? Why did you think you were being given these sorts of tasks, etc.? Think back to your childhood in a sense.

Another analogue here is the way Katherine Wolf years back at Yale would train observers, in what she called "motor empathy," a system in which the individual observer recorded observations in a non-verbal way using a graphic system so as to exclude the bias automatically generated by verbal labels. Recall was by role playing using those graphic descriptions as guides to one's motor actions. She called the system <u>motor empathy</u> because she postulated that one feels akin to the subject being observed by trying to get into his posture, move his way, etc. These behaviors generate motor impulses and feelings that may approximate those of the

subject. The objective is the same as introspective ethology, namely, to get to understand someone of our own species. The argument offered is that perhaps it can be facilitated by addressing ourselves to introspections in action states.

This brings us to our second data gathering procedure with children which is observational. Here we are maximally inferencers. Even when describing what we see and when we do it in purely verbal terms, the words we use are selected and biased, fragmenting the subject being observed. If you were to read anecdotal narrative recordings of individuals, you would probably find a wide range of language used by observers to record behavior, varied objects selected for recording, etc. I remember so vividly when one of my colleagues and I were observing children years ago, it came to us suddenly that one of us apparently was expert in describing hand movements, while the other was expert in describing the total torso movements, but neither of us ever recorded any highly detailed statements of hand-eye coordination. Where one observer would focus on the details of particular aspects of a total individual and another would have a broader perspective, the net outcome is differential picture of the child. It is much like the classic story of the blind man and the elephant. Obvious as it might sound, it poses a series of problems which need resolution, particularly when we use observational procedures as a means of identification of children's competence. To do this requires selection of methods which facilitate objectification of that which is observed. This of course, is nothing new and is basic to any observational research methodology. Nevertheless, it is evident that observations are

always dealing with aspects of events simply because our limits as research observational instruments define the range and depth of our observation.

Perhaps more important is that observations only allow for descriptions of behavior and beyond that everything is inferential. We even find ourselves dealing with behaviors in inferential ways. An example of this would be a definition of a mood or an expression of an affect such as anger. Actually, this is not behavioral description, but is rather an inference of a mood quality. To really describe literally what that is, would merely mean a statement of the physical changes on the face or any other body parts and movement of that body, but to imply that it is anger or happiness or sadness or whatever, is indeed inferential.[2]

To resolve the dilemma, investigators have been moved to create tests which are not tests, in the strict sense of the term, but rather tasks given to subjects in order to assay their competence in performing with the particular materials in that particular context. These tasks tend, as we know, to be either methods to determine the knowledge or competence level of an individual; that is, what he can do or attempt to assess the processes employed by individuals in solving certain classes of problems. We have a variety of tests with which you are familiar; e.g., objective tests, projective tests: tests varying in a variety of characteristics from high structure with right or wrong answers, to free and open ended with unspecified correctness. All of these tests, however, share certain commonalities, which will become the central discussion of this paper. It is the shared commonality of tests and their underlying philosophy

[2]Application of <u>any</u> verbal label to any behavior is an interpretation but here would take us far afield. The issue, however, should not be dismissed lightly since it is basic to the descriptive language of science.

and rationale that raises a variety of issues which I believe are contra-indicated by the usual definition or designation of tests.

Tests, as we all know, are efforts at objectively measuring individual capability or an individual's strategy in dealing with classes of problems. A test is a measurement device and is treated as an objective instrument allowing for quantifiable data. It attempts to remove inference and bias, to provide a standardized set of tasks and conditions in which responses are produced. In this way, presumably, the responses of individuals become comparable simply because the tasks presented to each person are standard or identical. My contention is that we tend to take for granted many of the sources of error in test construction, administration and interpretation which cloud or mislead our perspective regarding the value of tests. Let me say at the outset before embarking on this discussion, that this is in no way to be construed as advocating rejection of tests or this type of measurement. Rather, my intention is to provide a perspective by which we can conceptualize the role of tests, the sources of error and alter some of our conceptions about their utility.

A test as a task is usually taken out of any rational context and presented in a specified set of conditions on the assumption that this sample of items (i.e., the test item) represent a sample of a universe of tasks. The response to this task is the knowledge, and the response is construed as a sample of the individual's ability. Thus, if an individual is asked how far it is from Paris to New York, this is assumed to assess social comprehension or maybe geography knowledge and the response is

assumed to be a sample of the individual's knowledge of that universe of knowledge, be it geography or general social questions. In effect, tests and the test procedure involve sampling in areas of 1) the class of items and 2) the class of responses.

Items are selected out of context and presented to the individual in standardized social situations and responses are coded in predetermined ways. An array of such decontextualized statements or tasks is presented. At issue is the basic question: if one samples an individual's knowledge base with a decontextualized item or items, what does that response to that item mean?

One could argue that it is exactly in this type context that we would have maximal certainty that the respondent knows something. For example, if I present you with an algebraic equation for solution, would solution to this be a better indication of your knowledge of algebra than if I gave you a specific problem involving the same mathematical processes, but in the context of two differentially speeding trains going a particular distance, with the requirement that you determine which train will arrive first at a particular point. In other words, the problem changes when the first problem is an algebraic equation with no designated content and in algebraic form demanding solution, whereas the other is a problem put into a verbal context with meaningful content. The processes involved in each requires identical mathematical operations. Which one is the test of mathematical knowledge, which one is a "better" test, and if they are equivalent why give different ones -- what makes the difference?

Another example of a decontextualized situation is more extreme: when asking individual questions; e.g., in geography, and then moving on into arithmetic or other items, in contrast to asking questions in the context of the discussion or the teaching situation for geography. In other words, we may have two settings, each of which demands a similar process, but the context in which the process is to be expressed varies.

In testing, it may be argued, the decontextualized response is a better indication of knowledge since it is not dependent on extra dimensional support, but rather is pure or independent of concrete types of associations. Thus, it means that the response reflects generalization not tied to a particular context. Generalization of phenomena across situations may well be considered the better test of the person's knowledge state.

On the other hand, one could argue that if tasks demand similar processes, but vary in form in presentation, we should examine the meaning and significance of form. I have a hunch that the form in which an item occurs is critical for it contributes to a definition of context. I would like to propose, <u>the principal of contextualization, which argues that the context in which the item is presented alters the very nature of that item by a virtue of necessitated situational constraints or facilitators</u>.

Let me move on to the next question regarding context. Now, the question resolves itself to a decision of how much of a context must be included in the evaluation and what should that context be? In experimental psychology or psychometric test taking, or research involving tasks,

everyone must face this issue. Is paired associate learning a test of learning in general and will it produce laws of learning applicable to all learning? Or will it yield highly specific sets of laws which are particular to paired associate learning in that particular context? You will note that in psychology generally, the issue is not usually addressed in these terms. Rather methodological discussion emphasizes research design, which is necessary but not sufficient since it ignores the psycho-logic of research contexts. For me the context in which an experiment is run, and the particular tasks involved, are critical because a complex array of behaviors (overt and covert) are elicited and not taken into account in the interpretation of responses. The analysis of the experimental of test situation is in effect usually done in linear S-R terms, when in reality it is a complex set of field forces interacting simultaneously in influencing the response, the response's being an interpretive statement of these conditions.

Let me review how I became concerned about this issue. I will relate some distinct experiences I have had in analyzing some test data and observational data thereby, bringing to your attention the fundamental complexities discussed above. For the past two years, I have been director of an Early Childhood Education Project involving children aged two. As in all these projects, we have evaluation of the child's status prior to entry into the program and periodic evaluations during and at the end of two academic years. In addition, we have gathered considerable observational data in order to describe the social and cognitive behaviors of these children in a classroom period situation.

In other words, we have both formal test data and detailed observational data. Among the tasks in the formal test situation is one called the Concept of One taken from the Bayley Infant Scale. On the initial testing most of the children failed and so they also failed eight months later. This surprised us, for in the judgment of the teachers, the children knew the concept of one. We reexamined the observations, and inquired of teachers; we found the children perfectly well understood the concept "one" and in most cases the concept "two."

To grasp the problem more clearly, it is necessary to describe the two situations. The concept of one in the psychometric task involves the child's presenting on demand one block from an array of blocks. In the classroom we discovered that the children knew the concept one and two when integrated with the taking of cookies, or passing cookies, or giving the teacher cookies. In many other "play" areas the concept of one and two seemed clear. Granted, the concept of one was not general to every situation and seemed to be specific to a class of events. These observations lead, then, to the questions, how do we know when a child knows the concept of one, or two, or anything; and secondly, what does it mean in terms of his knowledge base; i.e., when a child seems to know something in one context and not in another.

Lest it be thought that the item has only to do with quantity, we found a similar phenomenon in visual memory. A visual memory task is involved when the child is presented with a picture of a familiar item and it is removed and ten seconds later he is asked to find the item among an array of choices. Again the children had difficulty with this.

The question now is not why the difference, nor why the difficulty with visual memory; the question is, why the difficulty in visual memory in the formal testing situation whereas visual memory seems to be well articulated in the classroom. The children remember who was present, will identify those who were absent and will find materials or games and move directly toward them. They will reconstruct these while riding the bus to school mentally and then proceed to follow through. In order words, whatever the memory components are, they certainly seem to have an idea or image of how their nursery school world is structured.

The same discrepancy is found with language tests. The children are given a number of such tasks in the testing situation. They seem to master words involving their own body, such as labeling parts of the face and head and hands, and do quite well on this type of task. They fail on understanding prepositions which are admittedly relational terms and frequently pose some problems. However, the failure of the prepositional terms, in contrast to some of the success on the body figure terms, poses a contradiction that is further heightened by the performance of the children on language tasks involving prepositions. In the classroom context we have no question that children understand such prepositions as <u>on</u> or <u>under</u> or <u>beside</u> or <u>in</u> or <u>out</u>. In the test situation this is not true. They have considerable difficulty understanding these relational terms outside of certain kinds of associated contexts or actions. The question again is -- what does it mean when we

contend that the child has limited comprehension of prepositional language, or that the child has differential receptive or expressive language. It is these kinds of contradictions between test performance and classroom behavior that forces us to ask the questions: does the child have a concept of one? Does the child have deficiencies in visual memory? Does the child understand or not, certain prepositions? Precisely, when do we know when the child knows? In effect, from my experience these distinctions suggest that the child's knowledge is contingent upon certain classes of environmental events, and these environmental events interact with other unanticipated, unassessed cognitive processes, which in their totality enable appropriate action and/or comprehension by the child.

Is this an important issue or is it a straw man? This becomes a legitimate concern. For me the issue is not a straw man, but is a basic epistemological question that demands understanding if we are to grasp the essence of the child's knowledge. Keep in mind how important test results are, for in fact our data base rests on such accumulation of knowledge. Traditionally, we are concerned about the validity and validation criteria for tests. We ask, do tests, in fact measure what they purport to measure. Well, I ask the question: What does the concept of one task measure? The child's knowledge of one. If so, what is my validating criterion? Is it performance in another context? If it fails, then there is no correlation and consequently no validity. Is there reliability? In this case, yes. Consistently children fail, but it is in this particular context. How do we determine validity of our measure if it is so? Every day for a month, this may show high

consistency, but then the child comes in and solves the problem. Is that the reliability of the test, or that the child is aging rapidly and acquiring considerable knowledge at a considerate rate? For us, in this field, it seems construct validity is not sufficiently relevant. We are more concerned with predictive validity; that is, the ability to predict from test performance to other classes of competence in relevant areas of functioning. Thus, the first task is how to establish validating criteria for tests with young children.

Secondly, the significance of the issue rests on its implication for our conceptualization of psychometrics tests. It seems self-evident that each task is complex and multi-dimensional, and it is my contention that lack of consideration of this simple notion may be one of the sources of error; or, to put it another way, contributes to the increased variance we find. For example, all tests do share certain commonalities, in spite of their ostensive differences. Let me give an illustration involving comparisons in tasks and settings. Let us take the particular situation addressed in this discussion, namely the concept "one" in the classroom and the concept "one" in the test situation. Each involves number; there is an overlap in that informational domain. Each involes counting which is a serial activity. Third, each involves a distinction or a discrimination of an item from an array of identical items. In the cookie basket, all the cookies are alike. In the test situation, all the blocks are alike. But, in spite of these shared similarities, there is also an array of discrepancies, so that the overlap is partial. The discrepancies are such things as the social context. In one situation, there

is a child and an adult away from the group, away from any relevant activity and involved in what may seem to the child as a legitimate achievement assessing situation. There is seriousness about it, in spite of the adult's assertion that "we are here to play games." In the classroom, there are familiar surroundings and a familiar kind of social support in activity and high association to previous experiences in which this same act occurred.

The content of the items becomes a second discriminating situation. Now the content of the items is a meaningful object to which the child has had experience and has some affective relationships. He knows about the objects involved, he knows about cookies, that you put them in the mouth, you eat them and they taste good. He knows something about their characteristics. Therefore, he is now dealing with a familiar content item in a social context. In the block situation in the formal test, the blocks have no relevance. They are in fact, merely representative of instances of oneness, where "one" has no relevance for these children. Consequently, the content of the item is different.

And perhaps, more important, the outcome of the activity is different. In the cookie situation, the outcome is consumption of an object. It is internal, it is to give pleasure to the person involved. Or if it is giving the cookie to someone else, this kind of sharing may also have its own symbolic significance, because the child is aware of the fact that the cookie has value. The blocks have no value. The task has no value. This is merely an adult asking for a silly thing, "give me one block," and that is it. The lack of meaningful outcome may be a significant factor here.

This type of analysis is only a preliminary one, suggesting that content similarity is not enough to expect correlations between performance in one setting and the other.

The analysis offered above while merely preliminary in nature, speaks primarily to certain kinds of logical and cognitive factors that are involved. In addition to the cognitive factor, attention must be given to the non-cognitive demands in the situation which I believe influence outcome. The task demands which are present exist in terms of relationships between participants, one an examiner, the other the child, with materials, with a sense of freedom, with a sense of being evaluated. These are but some of the non-cognitive relevant factors that are operating constantly from the moment the child walks into the room until he is through. There are considerable differences in the quality of their experience, so that, the participants - examiner and child - have built in expectation of each other. I believe children quickly become aware of the fact that they are being examined and evaluated in spite of our dishonest statements to the contrary. We eliminate and reduce the sense of freedom for the child to come or to go and we use certain kinds of pressures or seductions to keep them "playing games." Even young children may find themselves conflicted about these social demands. Finally, I am quite convinced that children from many backgrounds, including very deprived ones, must get some feeling that they are in an evaluative situation where they are being judged by the adult in the testing situation. In the classroom situation, these non-cognitive elements are different. It is true there are participants, but now they may be peers and/or adults. Materials may be shared by other

peers and there is a struggle about that. Children may in other programs have a greater sense of freedom to move in and out of situations, and in their moving in and out, they do not feel as though they were being evaluated for this and every act. In other words, I think these cognitive and non-cognitive variables mentioned provide sources of error; or, to put it another way, my analytic perspective readily tells us what factors are involved in influencing the kinds of responses that children give.

Critical as I appear regarding predictive validity of psychological assessment procedures in formal testing situations, there is a solution to the problem implicit in the above analysis. I offer it for consideration because I firmly believe the testing movement, and what it has to offer, does have significance. Our task is to place it in the proper perspective so that we are interpreting responses consistently within frameworks appropriate and relevant for test procedures, and perhaps for particular program evaluations. Before unfolding this analysis, I must raise some other restrictions; that is, the types of responses elicited by any inquiry and how these shall be treated. Although an issue of a different genre and not appropriate, for which time does not allow elaboration, I do not believe that the type of response expected through the kinds of questions posed and the kinds of tasks selected, create another set of factors influencing the quality of the response.

Returning now to the main thrust of the argument. It goes something like this: since performance varies with content and with problems presented to the child, since consistency is a criterion of knowledge

utilization, then our task is to define the context variables in order to discover what questions influence the expression of that knowledge. In effect, why does the child solve a problem in one context and not in another?

The answers will come from task and situational analyses. To achieve this goal, however, we must identify the relevant dimensions. This task, I confess, I have not worked out fully, but I have alluded to it at the beginning of my discussion and I would like to elaborate it somewhat now. So for the moment, we come up with some of the following types of analyses.

First, examination of "task" demands, as expressed in instructions or other types of structuring; for example, do instructions provide for orienting a child; how is the task structured if and when the child shows deviant or irrelevant behavior? Tasks involve a variety of demands: e.g., cognitive and motoric involvement, or non-motoric involvement and/or cognitive demands, perceptual activity, etc. Building a tower involves cognitive and motoric activity, while digit spans involve purely verbal responses. The variety of demands made in a task and the way in which these demands are expressed become very important determinants of subsequent responses. I am not only referring here to mood quality or warmth of relationship, but rather getting the child to know what he is supposed to do. You will note how complicated some of the instructions are that psychologists dream up for children. It makes one raise the question as to how much of our knowledge of children's knowledge is influenced by such impoverished and insensitive question asking.

Second, the social definition of the situation also generates a class of variables that must be considered in the analysis. Testing situations are essentially achievement oriented in spite of our euphemisms "let's play a game" or "I just want to see how children play with these type toys," etc. We have found children as young as two from impoverished homes asking "is that right" or "is that good." In effect, our good old mythology of the lack of active orientation and achievement evaluation in very young children is not a valid generalization. The children, however, do not seem to see the classroom situation as evaluative, nor have they made comments to that effect which they make in the testing situation.

Contextually relevant and embeddedness in the social context are other factors that must guide our construction and analysis of testing situations. Taking a cracker embedded in a familiar social scene which has continuity must have some kind of significance for the child. Tests alone describe how they respond to a decontextualized task, but it's like coming from nowhere and going nowhere. The degree to which the task demands are embedded and the characteristics of this embeddedness pose some important factors for consideration.

Meaningfulness in relationship to experience is a third consideration. Granted that the psychometric tasks are supposed to be novel and hence neutralize effects of differential practice, this very point may be counter-productive in revealing what children know. If this is a variable, then we can learn what the child knows in terms of its familiarity, but perhaps not in terms of its generalization yield.

Thus, what the child does not know, is the generality then in question; but yet he does know the item sometimes. For example, do I know Dr. Smock? If I only identify him in this context, but I cannot identify him in Washington or elsewhere, you may say I do not know him essentially. This is relevant to what we might talk about as object constancy or object permanence. Namely, that the knowledge of the object exists independent of context or symbolic form. It is the question of whether or not the object remains or does not remain when you cannot see it or you see it in an otherwise unfamiliar context. The question is, does the child still respond to some dimension of that object independent of the object's presence or its context? The issue is not settled by any means. Getting back to our problem, if you grant that there is partial knowledge of an item or an event, does this suggest a different mode of analysis to determine a knowledge base? Does this perhaps not lead to the idea of levels of knowledge, levels not only in hierarchical complexity, but in extension of situational contexts?

A fourth factor is in the task demand itself; is it recognition or reconstruction? Where recognition is the criterial response to determine the knowledge base, it may be appropriately responded to because of morphological similarities with no inference; where reconstruction is required a retrieval system that has its own criterion for identification has to be employed. It is important to distinguish between recognition and reconstruction to ascertain the knowledge base. If I ask a child to define something with no structure present he has to engage in an entirely different set of processes to respond. Thus, for example, when we

ask children to reconstruct or to recapture something from memory, we are setting demands which are different from recognizing. How we ask the question and how we communicate the type of response desired poses critical procedural issues, the resolution of which will inevitably influence results. I believe it is relevant for any item which requires the examiner to ask questions. It is a sensitive issue and one to which we must attend.

The above criteria are task oriented. Now let us turn to a discussion of motivational elements. These are communicated differentially, I believe, in various social situations. In a testing situation a child is being tested where the entire format is perhaps school-like or at least the orientation is set by an adult. The child is asked a question, there is obviously an answer or if not, why would this grown-up spend time doing this. There are varying types of reinforcement in these situations for responding to communicate quality of response, transition from one task to another, etc. Also in this content there is the inevitable time constraint; sometimes made obvious and sometimes subtle - all in all a unique type social interaction.

What we have in the above motivational element is what we can call achievement. But achievement is only one of many types of personality type manifestations. Other types of personal-social behavior that occur are help-seeking: in playing games with an adult can the child ask for help? Help is rejected if even nicely so. What if the child says, "I want to see how you do it," or "let's bring Johnny in here and see if he too can play like me."

There is a variety of issues that comes up in this and I think it is very important to understand some of these questions. In addition to help seeking and achievement, we also have intention, and will, and fatigue. These are very common elements in all tasks and there is no reason to go on into discussing them.

It is appropriate, I think, to use the last remaining minutes to focus on an issue which is implied in all the above; that is, what is the relationship between personality characteristics and performance? Our research indicates that as young as age two, there are considerable significant relationships obtained between observations of a child in a testing situation and his test performance.

As the child was given a battery of tests, a variety of attentional, motivational, verbal and manipulatory behaviors which occurred as a function of specific tester behaviors was recorded. Thirteen tester behaviors involving giving instructions, presenting test materials, giving the child reinforcement and personal attention, were systematically observed. Thirty-six child behaviors, such as looking at the tester or material, handling items, wandering, staring, etc., were observed in relation to the tester behaviors which were presumed to be probable elicitors. One tester behavior and two child behaviors were recorded every five seconds throughout the test sessions. Two to four observers recorded these behaviors with an overall reliability of 85%.

Of these tester-child behaviors, only six tester and 20 child behaviors occurred with enough frequency to warrant statistical treatment.

Three types of responses were analyzed: 1) Attentional and Interpersonal Responses, 2) Orientation and Manual Responses to Materials, 3) Verbal Responses. Comparisons along these dimensions were then made between these children who scored in the first and fourth quartile of the test battery.

Attentional and Interpersonal Responses: It was found that high and low scorers seem to differ in their orientation to the material and to the tester. Low scorers stare away while being watched, sit still during instructions and throughout the test sessions; high scorers smile when material is presented and smile at the tester throughout the session, more than low scorers do.

Boys appear more distracted than girls as evidenced by staring away from either the tester or the task, but there are some indications of greater dependence as seen in going to the teacher's lap while girls moved close to the tester and boys seemed to smile more during instructions. This latter observation is particularly interesting since it is the high scorers rather than the low scorers who smile more during instructions and it will be recalled that the high scoring group contains more female than males.

Orientation and Manual Responses to Test Materials: The differences in this category reflect the nature of high versus low scoring groups and indicate one possible source of this difference. Obviously correct and incorrect gestural responses, such as pointing to the correct picture or placing a form into the correct slot, differentiates high from low scoring groups. In addition, low scorers show greater absence of

responding. Low scores engage in more tactile manipulation of material during instructions and throughout all tester-child combinations. This may indicate some impulsivity since instructions were given with the command not to touch the material until told to do so. It may also be an indication of a more primitive mode of response to the material since tactile manipulation was defined as random touching and fingering rather than any exploratory constructive handling of the materials.

The differences in this area that are at lower levels of statistical significance, but also very suggestive are as follows: high scorers looked at the materials more than low scorers, although boys appear to look more than girls as a group, even though boys require more orientation to the materials. This may be a confounding factor in the looking response. While boys respond to the initial instructions with the correct gesture more often than girls, the girls improved significantly when instructions were repeated. Girls were better at piling blocks and aligning them laterally.

Verbal Responses: Girls and high scorers clearly verbalize more, and respond correctly to test questions, whereas boys remain silent rather than make errors.

In summary then, the high scores were predominatly female, were more active, enjoyed the task more, and evidenced more smiling, perhaps because of greater interpersonal ease. They sit still more, vis-a-vis the low scoring group only when instructions are repeated, indicating once again perhaps a response to a personal demand from an

adult or possibly need for achievement, or social desirability, etc. The low scorers who were predominantly male, seem to show less motivated interaction with the materials, stare away and engage in tactile manipulation of materials as opposed to an exploratory response.

When we look at the comparison of boys' versus girls' behaviors, irrespective of their scoring status, we found that the boys are quiet, more unresponsive, less verbal, less drawn to test materials and require more orientation. The girls are more restless, more verbal, better at piling and aligning blocks.

Thus, we find that there is some obvious relationship between performance and attendant[3] behaviors. As one examines these results, one should be cautioned that some of the attendant behaviors and test performance are confounded. However, there are indications that the attendant test behaviors seem to be in the service of test performance rather than just a concomitant.

To resolve the issues raised in this discussion will require specification of variables (or dimensions) and subsequent investigations examining the relationship implied herein. In effect, we do need empirical validation of these intuitions.

This paper will have accomplished its purpose if it has communicated a perspective that will contribute to increased veridicality of our knowledge of what a child knows.

[3]Attendant behaviors are those which are an integral part of the activated cognitive structures and thus "causally" associated with other dimensions of performance.

Discussion

Shantz: It is very interesting, working with someone over the years, then being separated geographically, and later seeing what kinds of themes get worked on by a productive mind. I believe it was stated in the Sigel & Hooper book, which is a compilation of research at the concrete operational stage, that one of the least understood areas because variables have been least isolated with any kind of clarity, is the general category of "environmental factors." I've noticed this sentence being quoted in increasing numbers of articles; evidently a good number of people agree because it is usually quoted as authority from which they then agree and give examples. It is interesting that this theme of what the child does in a natural situation as compared with test situations, is getting to be a recurring theme even in this conference. Irv has taken a very straight forward approach in terms of one strategy for trying to understand the variables in the situations which may account for the lack of generalization of the responses from the social, natural setting to our test settings. Anyone who has done very much testing with children has had these same experiences.

We tried one time with the conservation task (and it too was a fairly irrelevant kind of task) to test the children after they had been playing in nursery school and had not yet had juice so that they were thirsty which made the task a little more relevant. Instead of colored water we used orange juice to try to make it a more controlled, naturalistic setting. We thought that maybe then the conservation responses would be a little more meaningful. The only problem we found was that in that social situation we ran into a lot of social rules; which is to say, that it is not nice to take the one

that has the most. So you know, then, that the child isn't conserving at one level, but the child was very confused when he thought they had the same amount and you were acting as if they didn't. It wasn't quite so straight forward as it appeared in the beginning. I've always had students say, "Well, what if you use cookies instead of clay, and break them up into little pieces? I bet those kids know that all those little pieces make one whole cookie. But when you do it with clay it doesn't have that meaning." I don't think we know much about this area; it's one approach to start, to see if part of the social, real life stimuli kind of materials help us in our generalizing.

One of the other features I would like to comment on is to repeat what I said earlier: we as observers of children may come to the point of trying to categorize these environmental variables or situational factors, however, we wish to talk about them. We think that maybe the important one is whether we get generalization of responses or not. That may be part of the picture, but I think it is very difficult, as we were once told, to become as little children again. What we think are factors in this situation that make for generality or nongenerality, we may find are true only in certain circumstances. The fact is that we can't see what possibly is influencing responses; we find out by what children verbalize, by what they attend to just before they make the response, or that only factors which vary do become the factors that are important. In other words, I would still hold out for taking a more systematic approach to understanding how the child sees the situation, beyond just what we as adult observers see as the situational factors operating. The old research on the relationship between children's personality make-up and mothers' personality make-up yielded very low correlations. Then we went to family factors, like the authoritarian family versus others, in a grand search

for the important variables. I think this should be instructive in that we perhaps are not looking at the kinds of cues the children are looking at in the situation. For us, what is a rejecting mother may to one child also be a rejecting mother, but to another is one who just comes across as a mother who cares. The latter I have found, particularly, when talking to some lower class mothers, and, for example, tried to tell them that punishment doesn't work, just as all our literature suggests. They are not going to believe you, because in their situation they have found that it does work. The child sometimes perceives the punishment, not in the way that we do, but again in part, as the message that the parent cares. It seems to me that a convergent approach toward trying to define these situational variables would be helpful, both from an adult-observer point of view, with all the theory that we have, as well as finding out how the child views the situation and what he apparently is responding to in his perception.

Charlesworth: What would satisfy you in terms of the different things we could do to assess a child's knowledge? What would satisfy you so as to be able to say, "Yes, I know he has it or he doesn't?"

Sigel: Well, I shouldn't be surprised that you asked a question like that, because that's the real question; what is the end? As far as I'm concerned, I think that becomes a very relative question and I could give you some other work we've done related to that. Let me first mention briefly - the thing is, in solving a problem what level of information do you need to know? We talk about the importance of concepts; or we talk about the importance of details. Concepts and details interact in terms of the objective. I would say that the objective would be defined in terms of the class of problems you're talking about. It could be anything from reading to doing arithmetic;

and I'm not looking for a universal competence level, but I would be much more restrictive and say, "All right I think it's important for kids to know numbers and math concepts. I will work just within that domain and I talk with him there." I think implied in your question was the suggestion that what I was referring to was a grand scheme to talk about the whole knowledge base. I think that's presumptuous of us, to think that we can uncover that kind of knowledge; but I think it is not presumptuous of us to define our objectives on a more limited scale. Let me take your own work: you are interested in the surprise phenomenon and its role in cognitive development. To me, that is kind of a nice circumscribed sort of statement and I don't mean that in a negative sense. That may be all one needs to know about that sort of thing. On the other hand if you want to understand classification skills, you would zero-in on that.

Charlesworth: When could we say, "I'm sure the child knows it; I'm really sure he does know it?"

Sigel: Well, I think it would be in terms of how he performs in those areas which I am predicting toward. In other words, what I wanted to know about if I accepted a certain class of tasks; e.g., in mathematics, that statement would be accurate. I think beyond that we get presumptuous.

Smock: I think part of the problem is the way we phrase our inferences about the behavior; for example, take the "one" notion. What does it mean to say that the child has a concept of "one"? It seems to me, what you were describing was a situation where the child could engage in a set of actions or operations in one context and not another, with differential outcomes. In one case we make the inference he knows "one" or he has the concept "one"; in the other case we say he doesn't have the concept "one". If

you deal with it in that way, then it seems to me that the concept "one" doesn't mean anything, if he has it in one place and not the other.

Nimnicht: I'd like to complicate it a little more by asking a different kind of question, the latter part of your comments in reference to criticism of early childhood education. The thing that comes to mind is - other than scientific curiosity - why persist at all? What differences does it make if at that particular time the child has a complete concept of "one" or doesn't have a complete concept of "one"? Looking across all that is being done, this does not seem to be a particularly productive approach of looking at what's happening in early childhood programs, in the first place.

Sigel: That's a complicated question. I will not subscribe, at the moment, to the statements of outcomes that we get in early childhood programs. I think the unfortunate reliance on simplistic methods, nondevelopmentally based, tell me nothing about what happens in early childhood. I have yet to see a project that really has a good developmental perspective that is not additive, but which is, from my bias, a kind of a cummulative, hierachially-integrated notion. If there is one, I haven't seen it; therefore, I say there are no data that convince me one way or the other as to the utility or futility of early childhood programs. I asked this at an ETS Symposium in New York last week and it was interesting; I thought the roof would fall down. I felt like the little red hen going to see the king and it ended up that the emperor had no clothes. I felt as if I were talking like Don Quixote. I'm not trying to show you how much I've read, but what I get distressed about, is that I get the same kinds of questions as if the data we know have are valid. I'm saying that just because someone has an IQ gain

of 10 points or 12 points and it's statistically significant, is meaningless. I'd want to know about the interactive components as the kid moves through time. The only project that I've seen that approximates this is some of the work of Louise Miller, and she hasn't even been publishing. If you look at her component analysis you get very different sets of outcomes. Some of you will be happy to know that the Bereiter-Engleman kids don't read so well by the end of the first grade. She, at least is addressing the questions; I find that very few people are.

Nimnicht: Well, I think you did address the question; it's a broader issue than having or not having "oneness." My point was that we persist in the kind of behavior we ought to drop.

Baratz: On the one hand we have the issue of "developmental" as how things unfold, how the process actually works. We have that coming in together with an issue of how you make an institution, i.e., an early childhood program which is not something unfolding but artificial, and that's part of the whole problem--developmental as opposed to additive, etc. I would say, by the way, that I'm delighted to hear that individuals are finally understanding that the emperor has no clothes. The issue, it seems to me, is that it gets back to our president asking Moynihan whether or not feeding children would make them smarter, and if he could indeed say that feeding children would make them smarter then we should have a program to feed children. He did not ask whether children were hungry and therefore shouldn't we feed them. And I think that's the problem with these damned intervention programs, if I may state it strongly. Why are we asking whether or not they raise IQ's or whether they even make happy children. Why don't we just inspect what it is that's in these programs and whether children should be

in them or are happy in them or what happens, without justifying them to begin with and then discovering that the justification isn't there.

Sigel: What's even funnier about that is no one ever asks whether or not going to first grade predicts to high school graduation and I'm sure the correlation is low.

Baratz: Going into?

Sigel: No, success at first grade: does that predict whether or not you graduate from high school? Now we don't determine the maintenance of first grade on that criteria.

Nimnicht: ETS ran a study, which they did not report out of ETS, where they tried to trace one single thing that you might teach a child in the fourth grade that would relate to the sixth grade, and they could not find and single item. You can take general things and predict generally, but you cannot trace anything from fourth to sixth. So it seems like this whole pursuit is kind of a futile approach to the problem.

Love: Doesn't reading achievement at the end of the grade one predict success in grade 12, and whether or not they're going to make it?

Baratz: He's not saying that going to first grade doesn't predict.

Nimnicht: It's reading achievement in a global sense here. If you took the general test of the child's reading ability in the fourth, it would predict achievement in the sixth.

Sigel: My point is that's not the reason why you have a sixth grade curriculum, it has nothing to do with what you do in the fourth grade. But yet, when it comes to early childhood education we use the success there of the poor kids as its justification, which seems to me a little inconsistent.

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What Should We Measure When We Measure Linguistic Competence ?

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First Conference

on

NEW PERSPECTIVES IN DEVELOPMENTAL ASSESSMENT

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and
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What Should We Measure When We Measure Linguistic Competence?

Joan C. Baratz

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When I sat down to work on this speech, I noticed that Dr. Sigel's talk was entitled "When Do We Know What A Child Knows?" I suppose the issue of when is crucial to developmental psychologists. However, I have been struck with the fact that -- especially where language is concerned -- a critical issue for developmental linguists is what it is that we are measuring.

If we take a brief look at the recent history of developmental psychology's involvement in testing minority group children, I think it can be very instructive concerning this "what and when" issue.

Back in those unenlightened days, psychologists felt that they could measure aspects of language development by generally using the ITPA, Wepman Auditory Discrimination Test, the Peabody Picture Vocabulary Test or some newer little item like the Cognitive Maturity Test, etc. (refer to some of the more popular items -- still used in many instances). The result of this measuring was the finding that "when using such instruments we discover that the children don't know very much language; i.e., they are linguistically underdeveloped and pathologically so."

Now, to some of us, who knew the children who were declared verbally deficient, this news was quite a shock, for if anything, we had discovered that these kids were excessively verbal -- not necessarily with an adult, but none the less extremely verbal. So, we began to question how such results could be continually generated.

The first thing to be concluded from a cursory examination was that the tests were not measuring what these children knew -- but rather what they

didn't know -- i.e., Standard English. This is a crucial issue -- while minority children were learning varieties of English that were well developed and highly structured -- and capable of use in abstraction -- they were not tested on their knowledge of such forms, but rather on their knowledge of something that they were not generally exposed to, that is, Standard English (SE).

I emphasize this because I sometimes hear mentioned as a popular solution to the difficulties of assessment of minority group children's abilities, the suggestion that we normatize these tests on these kids and then they will be adequate. This grows out of the observation that, for example, the ITPA was standardized on exclusively white populations in Illinois and Wisconsin (Negroes deliberately were excluded as were handicapped and retarded children).

Now the reason I reject normatizing the test on various populations is that such a procedure will still fall short of the goal of discovering what a child knows, becuase it will still be testing his knowledge of SE and not his language development.

The tests referred to above are not, however, inadequate merely because they test SE in populations where SE is not the dominant language variety, but also because they violate sociolinguistic conventions that are a part of the child's competence. For example, the linguistic competence of any child is not only composed of internal rules for generating sentences, and an extensive vocabulary, but also rules for use of those talents, i.e., when to say what and to whom. This is not merely as simple as three and four-year-olds quickly learning -- in some cultures, especially mainstream -- that you don't say "FUCK" to mother, but is more complicated and involves roles

vis a vis other persons.

Let me illustrate what I mean with two cultural groups that I know quite well, and hopefully my point will be obvious -- the Jewish mother and the Black mother. Both these mothers are intimately involved in socializing their children re, among other things, language use. However, they do not conceptualize the child's role in precisely the same manner. Within the Black culture, the pre-school child is not seen as a budding conversationalist with whom adults interact and who can demand adult time for social interaction.

In the Jewish culture the opposite is true -- the kid is perceived as a "talker" who is to "display" in front of adults -- I do not wish to tell you of the many long hours I have wasted when calling friends and relatives on important business only to have to spend time talking to, in many instances, some non-talking kid. I'm sure that's happened to you. In addition you go to someone's house and you and she are deeply involved in a conversation that is concerned with ending the war, solving the education problems, or talking about Uncle Harry's latest mistress, when the kid walks in and usually -- his prerogative in Jewish culture -- interrupts, at which time he gets a chance to show Aunt Joan his toy, tell about school, sing a song, ad nauseum.

This is not the case in the Black culture. Children do not have the right to interrupt adults and demand such display -- the conventional wisdom of children being seen and not heard is much more to the point. Nonetheless, both these children are learning a great deal about linguistic interaction -- and when they are tested they are likely to demonstrate what they have learned. When that friendly white or black examiner holds up that little red cube on the ITPA and says to the kid, "Tell me all about it," that little Jewish kid is primed. I mean he is ready! He has learned to spew forth in relation to

adults. But what of the Black child? He too is ready. He knows how to behave in front of adults, Black or white -- you just don't say too much. Indeed, if it's anything that intervention programs do it's socialize the kid into test taking, not necessarily give him the content for the test. He has got to learn what "Tell me" means in the mainstream system -- and therein lies the catch-up effect.

Thus we discover that what we do measure and what we should measure when we test "linguistic development" are not necessarily the same thing.

If we look at traditional approaches to measuring "language development" we find that considerable concern is evident for eliciting and categorizing the speech act itself -- perhaps because these observables, i.e., phonemes and syntax -- are much more amenable to classification than something as elusive as the aforementioned mother's attitude toward the child as a speaker. Nonetheless, the question of what should go into a bag concerning assessment of linguistic competence, I believe, is much greater and encompasses non-verbal as well as verbal aspects.

There is, of course, more to the issue of testing forms than the mere assignation of a category. For example, we might wish to know what a child knows about a question. He may understand and generate questions that are non-verbal (i.e., tilt his head, wrinkle his nose, and raise his eyebrow) or paralinguistic (i.e., "huh?") through verbal "what, where, when and ifs" to such items as, "She da girl you lookin' for?" or "You're not going?" (rising inflection). Indeed, one must not only be able to distinguish what is a question, but what is not a question. For example, when France refused to sell Israel the Phantom Jets that she had promised them, an English journalist interviewed Rabin, the Israeli Ambassador to the U.N. In response to the journalist's question, "Is it true, Ambassador, that Israel is thinking of boycotting French wines and French perfumes?" Rabin replied, "Why shouldn't

Israel boycott French products?" The journalist noted in his article that the Ambassador had been evasive, whereas every Jew in New York reading the article knew that Rabin had not asked a question but that question-form was in fact an affirmative response.

Jews have a thing about questions. One scholar can get up and make a brilliant speech for an hour on, e.g., what it means to be a Jew, or, why the war goes on, etc., and another scholar will stand up and say something like, "That was brilliant, doctor, but that is really not the question. The question is why do we not leave the war . . ." This kind of style is not an accident, by the way. It began when the doctor as a kid asked his mother a question to which she did not respond with an answer, but with another question.

For example, when I was an adolescent and well socialized into the basics of my future career as a Jewish mother, I was riding in a car with a friend's four-year-old "precious" (gloss Jewish first-born son) child. We passed some cows and Peter said to me, "Joan, do brown cows give chocolate milk?" My appropriate socializing response to this charming question was the following: "Now, Peter, if white cows gave white milk, and brown cows gave chocolate milk, what would black cows give?" I knew my question would provide him the cognitive map necessary to see the absurdity in his initial question. He promptly replied, "Coca Cola" and nipped my Jewish mother career in the bud!

Part of the linguistic repertoire of a kid involves learning these interaction games. For a black child, for example, part of his linguistic competence may well involve learning to play the dozens. I've gotten examples of the game from children as young as five, but others have told me that even

younger children have learned it. Playing the dozens is an example of language competence that is clearly not learned at mama's knee. In learning how to play the game the child goes from reciting traditional insults -- "your mama drinks pee" -- and rhymes -- "I don' play the dozens, the dozens ain't my game, but the way I fucked your mama is a goddam shame" -- to being able to generate a sound that has not been part of the traditional repertoire.

One of the important components of the game is not merely learning the insults and being able to generate clever ones yourself, but also never saying anything that is real. If one makes an insult that is an actual fact, then you are going from a word game to real fighting. The child has to know not only the content of the game but also must understand the rules. Children learn this game, learn it early, and also learn with whom they can play it. The importance of individuals understanding the existence of this game can be illustrated by the kind of misunderstanding that can be created when, for example, a teacher does not know of the dozens. Merely asking, "How's your mama?" or saying "mama" can set the game off. Thus a school teacher who asks a child who has been absent, "Where have you been? Do you have a note from your mother?" can inadvertently begin the "dozens" with her students. She gets the whole class into an uproar, and is totally ignorant of what caused the commotion.

The rudiments of the dozens are acquired in an age-grading process from older children in much the same way other children's games and jump rope rhymes are learned. The children model their behavior (i.e., learn the rhymes and songs) from other children. This age-grading process in language socialization is a sorely neglected area in psychological studies of language development.

In a sense, this has brought me to the issue of language use and measurement of competence. It is interesting, of course, to examine in detail the term language use from both a linguistic and an anthropological perspective. Psychology equates language use with cognition whereas the anthropologic and linguistic tradition employs the term "use" under the category of what kind of language forms appear under what conditions; conditions, of course, involving speakers, setting and topic. This involves such uses as to whom do you say "ma'am"; do you say "good morning", "good morning, Doctor", or "good morning, Doctor Jones" etc. For example, in the academic culture one addresses medical doctors as "Doctor" and PhD's as Mr. and Ms. (This is more true in linguistics, however, than in education.) An insider would never say "good morning, Doctor" to an academic, it would have to be "good morning, Dr. Jones". One might learn the linguistic forms of another language very adequately and not the social uses. Thus, when the recent wheat deal with Russia was reported in the trade journal, the editor remarked that he had gotten the tip on the deal from a Russian who posed as an Englishman. When asked how he knew the man was Russian, the editor replied, "He kept referring to people as Mr. Tom Jones, Mr. Secretary Earl Butz, etc. Englishmen don't do that" (but Russian form does). Part of learning a language is learning its social forms. <u>This</u> is the area I believe that is sorely neglected when we assess linguistic competence in children and this is the area I would urge be expanded in your measurement studies.

Anyone who has observed children at playing school or house, as well as interacting with different types, etc., knows that their competence in terms of rules for interaction is significant. They know when, why and what to

shout about, when and why to whisper, when to shift into baby talk, when to be silent, etc. Such knowledge is not merely an indicator of the ever-broadening proficiency of the child's use of his vocal apparatus, but rather it is a measure of how well he has internalized the abstract social relationships and values of his culture. More work needs to be done in this area. In testing we have barely scratched the surface of this aspect of linguistic competence.

Discussion

Blaubergs: Ms. Baratz has suggested that we are not ready to assess language development. However, such assessment is taking place in the schools. Rather than saying that we cannot yet assess language development, it might be more fruitful to consider the implications and possibilities of different approaches to such assessment. It is suggested that a convergence of information from the experimental psycholinguistic study of language acquisition with that from assessment could provide such new approaches. Psycholinguistic work for sometime was aimed at writing rules for the various stages in language acquisition. Such child grammars may potentially provide additional bases for language assessment which now focus far too much on vocabulary acquisition. Although most of the psycholinguistic work has dealt with ages prior to school age, some experimental tests of comprehension are now being developed for later ages by Carol Chomsky, (1969); Cromer, (1970); and Kessel (1970).

Regarding the inadequacies of present measures for assessment, Ms. Baratz mentioned the failure to consider sociological variations of language use in different subcultures and in differing situations. Such variables as encouragement vs. non-encouragement to talk with adults could presumably affect test scores without reflecting the child's language competence.

Similarly, in studying the process of language acquisition, an increased emphasis should be placed on contextual variables, such as the preliminary work of Campbell and Wales, 1970.

There are, currently, several approaches to assessment, with somewhat varying implications for education. One approach typically used is to measure performance in Standard English by standard procedures in a testing situation. The approach was attacked by Ms. Baratz. The implications clearly are that Standard English is to be learned and deficiencies in its use are to be corrected. In this approach, performance is taken to be a direct reflection of underlying competence. Clearly, this approach necessarily neglects sociological variables both in assessment and remedies.

In contrast, some other possible approaches aim to vary performance-related variables for a potentially more accurate measure of underlying competence. A much oversimplified view of the justification of including such variables is that if an aspect of competence can be elicited in any situation, it can be assumed to exist as a competence of the child. However, if the goal is for children to express and to use what they know, an educational problem is created if such competence is only expressed under special circumstances and not in those circumstances (e.g., in school) where it is presumed to be useful. One possible variation has been to give different subtests for different subcultural groups. Current research on Black Dialects and on Spanish-English bilingualism suggest the assessment of development in the language or dialect spoken by the child. If the goal of teaching Standard English to enable functioning in the society at large is to be realized, Standard English is then to be taught as a second language.

The ethological approach, as recommended by Charlesworth, would suggest the collection of free utterances for evaluation. Psycholinguistic work has

shown this to be an extremely tedious and long-range effort and thus not suitable for large-scale testing. However, some ideas from methods of elicited imitation such as those developed by Rodd and Braine (1970) for use with very young children possibly could be adapted for testing older children, i.e., providing eliciting situations for structures to be tested. Another ethological approach is to modify the testing situation itself. Ample evidence of experimenter effects based on variables such as sex or race of the experimenter exists. With children, the use of a peer tester or a peer interactor (Chomsky, 1969) could be explored. Indeed, Piaget (1971) has found some differences in conversations between peer-age children and conversations between children and adults.

Charlesworth: I would like to reinforce what you said. Just think, if we had spent 1% of what we have done so far in looking at competence of children, not from such an arrogant, ignorant way that we have in many cases, but just by watching them act. The arrogance here is that you assume that the animal is not adapted to its environment; and to imagine that the people living in the ghetto wouldn't be adapted to that environment since they have an awful lot of social interaction -- just to imagine that they would have a deficit in language for example -- is unbelievable. And then to come in and do poorly what they do ... well, you have reinforced the ethological position.

Baratz: I do not mean "mocking" behavior in talking about "imitation"; I am using the word "marking". The kid is not passing a value judgment (although in some instances there may be some of that); what he is telling you is how he perceives the situation. I will never forget when my daughter in first grade said to me, "Would you play school with me?" I was reading the paper

and I said to her, "I will play school with you. It is now 10 after 7 and at 7:30 I will play school with you." She knew that we had this thing set up that I would devote periods of time and do whatever she wanted at this time. She kept bothering me, she kept coming over and saying, "Please I want you to be the principal." I said, "I'll be the principal, I'll be the teacher, I'll be whatever you want, but it is not 7:30." Finally, it came out that the principal sits and reads the newspaper, and if I would only say I was playing school with her at the moment, I could proceed to read the paper, and she would be happy; she knew what the principal did. And it wasn't sarcasm.

Glasersfeld: I would like to add something to this problem of testing competence, which is very simply that the question asked of the child can be difficult or easy, but it can also be too easy and that is very often disregarded by people who test for linguistic competence. I can tell you a very short story about that, of a little boy of seven in a town near which there was a river called Swan River. He was in school and he came home purple with rage, because the teacher asked them, "Why is the river called Swan River?," and then asked him personally. He said, "I don't know," and the whole class laughed. And the teacher said, "You are very silly; because there are swans on it." The little boy had known that, but he couldn't believe that the answer would be so simple and so silly; and therefore he didn't say it. I think that is a very important fact, that the question to the receiver of the question must ask for something slightly unexpected. If it merely asks for the obvious, there is a strong tendency not to answer because you expect a catch.

Baratz: The other thing is that you may be dealing with a culture that believes "he tried to trick my mind." So, that even when it is not that directly simple, the question is not what the question really is. That's a circle which is hard to get out of, but it's a reality that we have to deal with.

Glasersfeld: And the more verbal the child, the more rampant are these games. You ask a question which seems simple, but the answer you expect is quite a different one.

Baratz: I have watched the Jewish discourse style: it raises the question, then it answers the question, then it says what Rabbi Ben so-and-so said about the question or what someone else said about the question. It poses all these possible alternatives and then comes to its own conclusion. In terms of cultural continuity and change, that still exists, in discourse styles of kids who haven't spent years in Yeshivas and who don't even know what a Yeshiva is. You get that interacting with Black style and you get a communication problem. Here's a lady just trying to explain what she means; she would explain it that way whether she was talking to Sadie or Fannie and she explains it the same way when she's at the community meeting. The response from the black community is that it's "talking down to me." And that, again, is a misreading of what is going on in the communication style. We have to get into all of this, and we haven't really even scratched the surface so far as adequate assessment is concerned.

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New Perspectives in Compensatory Education

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First Conference on NEW PERSPECTIVES IN DEVELOPMENTAL ASSESSMENT

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New Perspectives in Compensatory Education

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An evaluation in any human science is a statement of values by the person who is doing the evaluating; that's inescapable. The way the problem is set, approached, and evaluated expresses certain values about the kinds of human beings one would like to have a part in helping to develop as well as the role one expects the formal educational institution to play in the total education of a person. The task is, first, to make your values explicit and then to be as explicit as possible as to how you will go about checking to see whether you are accomplishing what you have set out to accomplish.

A sharp distinction should be made between research and evaluation. Too often evaluation is seen as a form of research and it is not. It is a different breed of cat. Different information can be used which is not always acceptable in research; but the problem in evaluation is to be logical and consistent, to state values, and then to lay out the means to examine programs. The title of this paper is a little misleading: it is not about new perspectives in compensatory education. It is about new perspectives -- not compensatory education -- as will become clear.

There were many of us swept up in the early 60's with work that was being done and reported at the time in such journals as the Merrill-Palmer Quarterly by such people as Deutsch, J. McVicker Hunt and others, building a case for compensatory education. These studies dealt with research on animals and on human beings in extreme, unusual circumstances; For example, the little girl who was hidden away in an attic room because she was a bastard and kept there for several days, never recovering from the experience;

or monkeys and chimpanzees who were kept in total darkness and never developing their eyesight; and children who grew up in orphanages, showing the effects of this experience for the rest of their lives. From such studies, generalizations were made to a whole population of people called "low-income." So it became almost synonymous to be low income and to be environmentally, socially, or culturally deprived. In reality, the main thing wrong with a great many people who have low incomes is that they do not have enough money. Given more money, a great many problems could be solved. It was an unfortunate generalization, based upon limited research, to imply that everyone who falls below a certain income level is environmentally and/or culturally deprived. And, it led to some very unfortunate conclusions.

There are two kinds of current criticism of compensatory education. One type is that made by Jensen, who says we totally missed the boat because genetic makes the difference, accounting for most of the differences in human intelligence. The second kind of criticism, which has not received the same amount of attention, concerns the notions of compensatory education and intervention and how these two terms get tied together. Thus, it raises the issues of values: who deals well with the children and who doesn't, whose language is being imposed upon whom, etc.? You can go on with this type of reasoning. The consequences of this type of reasoning, I think, become rather clear. They direct the research, the development of activities and the education as if there is something wrong with the child or with the child's environment.

What's the environment of a four-year-old child? Essentially, it's his family and more specifically, the mother or the mother surrogate in the family. The result is saying that there is something wrong with this

child and his mother, and that we should intervene in the life of this child to compensate and to help him overcome the bad things that are happening to him, thereby enabling him to fit into this good system. When reasoning that way, the standard set by the system tends to be accepted as being the appropriate standard for evaluating the success of a program. Also one tends to focus on what has been or has not been done to the child to make him fit into this system. Inevitably, this means taking Spanish-speaking children and testing them on the ability to read English -- and much snaking of heads in despair because they don't read English as well as children who have been speaking English all their lives. To compensate for that, it is sometimes said the procedure is not fair. What should be done is to teach the child in English all year, but then he is given a Spanish-speaking test at the end of the year. Again, heads shake in despair because the child doesn't test well in Spanish either. The point is that it's the system standards that need to change, not the family -- but compensatory education places the responsibility on the family.

My contention is that this line of reasoning puts the educator in a nice position. It positions him in the situation of being the white knight riding out to solve someone else's problems, either some other social institution's problems or problems of the family and of the child. It also makes him look like Don Quixote. I am questioning the whole notion of compensatory education and the values that it now expresses.

Two notions that stand in contrast should be posed. First, one can not totally ignore the fact that there are some children who are growing up in environmentally deprived circumstances. This probably is not tied to a poverty line or to any race or ethnic group. Also, there are abused kids in

this world. There are extreme cases where the family can not be supportive to the child; that is, the ability of the family to attend to the child is not adequate. For example, if the pregnant mother is not receiving adequate medical care and this effects the child, no educational intervention is going to correct it. It is something that should be taken care of at the time of pregnancy. If the child grows up undernourished and his intellectual development is impaired because of it, that is another social failure which should be corrected by providing adequate food, not planning some educational intervention. To switch from this kind of physical analysis to the more social-political area, one may find the family living in a space in the environment that impinges upon it in such a way that the parents don't have time to attend to their child. There are other things that will detract such as mentally ill people in the home, adults or children, who take the time of the adult away from attending to a child. This affects the will to attend. Systematic analysis can reveal the kinds of things that tend to reduce the time the parent has to attend to the child. The solution is to look at what might be modified in social institutions that should be serving the family so as to give them time to attend. This is not to say or imply that every parent or every group of parents would use that time appropriately if they had it. But, until society has looked at the problems of providing parental time, we can't determine whether parents will use it or not. That is a question that must come later. So if that segment of our population is looked at in terms of the notion of the ability to attend to the child, then corrective measures can be provided.

Now, the school. It is much healthier to think and talk about the ability of the school to respond to its children than to hang onto the notion of compensatory education and intervention. If the children are considered

as clients of the school, one asks, "Can the school respond to its clients?" How well schools respond to different groups of children can be analyzed. Let's say, that right now, the schools respond best to children from northern European background, who tend to have the same values as the school. The parents have graduated from high school; they respect the school values, they reinforce them, they think the teaching procedures are correct, and they typically accept the schools as they are. Even within this white middle class population, there are some children in the school that the school doesn't respond to. If hair is too long, this can be a problem in some places, reflecting a value difference. Under ideal circumstances, a school's perfect response to a child might be considered to be 100. Among the general population just described of northern European background, children from that background may be responded to at about 80.

Now to look at other children. The more they differ from this norm, the less able the school is to respond to them. To pick extreme examples, consider Chicano children in California where there are real cultural differences, where there are real language differences, and where there are differences in life styles. How well the schools respond to most of these children on the proposed index might well drop down to 20, because the program has not been adapted to reflect the child's culture, to reflect his language, or to build upon what he knows. The schools are not responding well to that child. Such lack of responsiveness has implications across the line for curriculum change. For example, consider Navaho children. If I were teaching history to Navaho children, I would start with the fact that they have lived where they have for several thousands of years. Anthropologists tell us that their original migrations were across the Bering Strait.

My history of the Navahos would say that the Spanish were the first contact with the European, when the Spanish moved in from the south. The next contact with the Europeans was when the northern Europeans moved in from the north. In my history for the Navahos, Columbus did not discover America. I don't think he did for them. Now, my facts are straight but the perspective is quite different. That means that I can't possibly put that kind of educational program together and use the conventional achievement test in Social Studies. I have to have a different kind of program, in dealing with Chicano children, in dealing with different native American tribal groups and all the way through our population. I can't use a standardized achievement test that's based upon the ability to recall certain facts, like Columbus discovered America. I have to look at some other broader measures, and I would suggest that this would come closer to defining what education is all about.

This is the kind of thing I think would be appropriate and it means a different kind of achievement test. I would hope, for example, the kind of achievement test we would come up with would be asking questions like, "What has man done to enhance his environment and what has he done to destroy or make it ugly?" "What is the effect of people when one group conquers another, upon the conqueror and the conquered?" "What has happened to man as he has moved from a rural, agrarian culture to an urbanized society?"

Another way curricula would have to change would be to use different languages for different children. At the very least, it would be obvious that for the great many children, the white, middle class dialect as it is used in most schools in the United States, is not appropriate as a first language for every child. One has to deal with it as a second language, and

not as a primary language. The example of testing Spanish children would take on a quite different look. If the choice is to test Spanish-speaking children, the objective would be to see how well the Spanish speaker reads English, and the results would never be used in any insidious comparison with an English-speaking child's ability to read English.

There are other examples of how this orientation would change what we do in education. Certainly it would change the educational program for teachers, because this kind of program suggested here would be a highly individualized program. All the children can not be put down and given the same thing at the same time, nor can two schools across the river have exactly the same curriculum. That is not to say that the general values held by the public schools are wrong. If the schools are viewed as primarily responsible for creating an environment that will encourage the intellectual development of the people who attend the school, and intelligence is in terms of problem solving and not in terms of specific skills, I don't find any major objections. The schools would have common objectives but their approaches would be quite different because they would try to relate to the needs of people with whom they are working.

Another change, and a necessary one, is that we must move away from the melting-pot concept. This idea was best expressed by my daughter when we lived in New York City. When she was in the third grade, she came home from school one day and commented that the teacher said New York was a melting pot. My daughter said it looks a lot more like a tossed salad. I like the concept of the tossed salad much better than the melting pot. The educational system should not be designed to take in people from all sorts of backgrounds and produce a homogeneous gray mass, but rather it should be

designed to help children to remain Navaho, get educated, and not have to give up being Navaho while they are being educated, and then if they wish, return "to the blanket." Obviously if this tact is taken, it has fundamental implications for what is to be evaluated.

Some of the first questions to be asked in evaluation would be, "Have I made the system responsive to the client? Can I demonstrate it is a result of whatever I have done in the school so that it responds better to the children it's serving than it did before? Has it taken into account the language that the child speaks? Has it taken into account his life style, his cultural background and ethnic difference? Is it really responding to him as a learner and honoring him as a person, at the same time it is trying to help develop his intellectual abilities?" One of the questions parents would be asked is, "Do you think this school is serving your child and you better as a result of this program?" I would place a great deal of value upon that kind of evaluation; i.e., do the parents think that the school is actually serving them better.

The second thing to include in the evaluation is to look at the classrooms to determine whether the program provides, within the classroom, for better responsiveness to the children. The reason for this emphasis goes back to the point made earlier about the circular argument involved in school evaluation; the way to define the success of a project is to find if the child is more successful in that system. The question is not "Does it do more for him after he leaves the system" but "Is he more successful in that system"? The former encourages a self-perpetuating thing. What is consistently assumed is that the system does not need to be radically changed, but rather you simply need to help the child do better in what he was expected to do anyway. This is one of the great fallacies. The data on early childhood show no instance

where an early intervention program has had a sustained effect on children's academic skills after the intervention ended. That includes my own program and it includes the Becker-Engleman program as well.

I would be content to go in and analyze what kind of experience the child is having in the classroom, and make some assumptions about that kind of experience -- say "Does it support intellectual development?" "Is there something there that is challenging to that particular child? Is he engaging in the activity because he is interested in learning something from it?" Schools don't help children create a healthy self-concept (if they don't already have one) because the schools aren't sufficiently potent in the total environment to offset the home or the whole social system in which the child lives. But the schools certainly can avoid doing anything to destroy the child's self-concept in the process of helping him learn. The question is whether there's anything in the classroom that is damaging to the children. A detailed analysis is necessary, including the language the child uses, his background and his culture. "What materials are used and how appropriate are they for the children?" Have they taken the textbooks and shaded faces (so you can't tell who the people are) and now say "This is a multi-ethnic book?" The particular behaviors of the teacher who's helping the child learn need to be examined closely. For example, is she likely to encourage the kind of problem solving we talked about earlier? My values would say that children are fed small bits of information at a time and build from one small bit to another; they are developing the notion of being fed small bits of information, and not being encouraged to take on major problems and analyze them. So, from the frame of reference proposed here, it is the <u>form of experience</u> that is crucial and that is to be as the

end product. It is not feasible to relate that to precise changes that take place because these changes that take place in children are not that precise. The goal is to see children develop into people who have the ability to solve problems and have the self-confidence to go ahead and try to solve problems. That is not something to be expected at the end of one year or the end of two or three.

Lastly, there is another change that has to take place: low income people can not and should not continue to be used for experimental purposes without involving them. A lot of things done in evaluation have been shaded with nice terms like "unobstrusive" measures, which means that we are being terribly devious, going in and telling people we are trying to find out one thing while we are trying to find out something different. The idea is that the more they are misled on what you are trying to find out, the better response you are likely to get. Even though we might get better responses if we are misleading, we should no longer behave that way just because it will provide better responses. If developmental and experimental work is to be done with young children and their parents, then the parents must be involved in that work. The parent should have a right to say what will be done and how it will be done. The parents should not be misled. Those are the three notions I wanted to develop. Obviously each one could consume far more time than I have this morning. They are, I think, worthy of further consideration by all of us involved in educational change.

Discussion

Shantz: There are a number of issues you brought up I would agree with; for example, recognition of the child's individuality and acceptance of his differences from the middle class kind of value system that we typically bring in our school situations. One question that has come up twice already -- "How do you meet the child; How are you responsive to the child, in a practical situation?" I get concerned when we talk about how we ought to do things, when you compare that with what we do that we have to do, given large classes, harried teachers, great individual differences, etc., because I think that tutorial approaches and individualized responsiveness to children are just not feasible goals a good deal of the time in most classes.

Nimnicht: I would take an extreme point of view on that, and I would say that I wouldn't care if 3/4 of the day in the school were spent on activities entertaining the children so that they weren't bothering other people. It may be that you could have only 10-15-20 minutes with one, two or three year-old-children, but I have a hunch that kind of close contact would far outweigh all of the large group things you do. It does not bother me at all when I go into a classroom and I see two or three kids not involved in something. We can't sit here for six hours without taking time out; we're going to turn each other off and relax. I don't see why, then, we reason that the kids should be involved for six hours of intensive intellectual development without some time out. The other response is that we have to have much higher regard for the learner. If we will turn over a lot of this to the children and provide the environment where they can get the things that are interesting

to them, they will have a lot more productive time than they do now. One other comment: it's perfectly all right to do what I suggest with three, four and five year-old-children. When they are very young you can give them a lot of independence in learning because it doesn't make much difference. It is only when things get serious in the first grade, when kids start to read, that you have to start robbing them of their independence and start directing them, and of course it reaches its maximum at the graduate level in college.

Baratz: I think all this is much more complicated than a recitation of merely the fact that there are cultural differences, that there are nice little curricula that could be constructed that not only Navahos should know but that everybody should know about our society, and I think these are very simple. There's a great mysticism now about parents: the school system doesn't know what to do, so the parents will know what to do. There's a difference between the parents' setting goals and parents' implementing a program to get to those goals -- quite often we get confused about this difference. As the matter of fact, it may turn out that parents are an instrument that's "in the way" of achieving the very goals that they themselves set up. Or as you pointed out, they may not even understand that there are problems. You may be dealing with a culture that on the one hand doesn't see the problems of the children's not reading, but the problem is that the school is not symbolically treating children as if they were readers, and thereby creating the problem of non-readers. You are dealing with "real society," that is, this tossed salad society that has an assimilationist mythology and model of itself. The parents, whether or not they

have assimilated even keeping their tossed-saladness by the assimilationist myth, may object to a pluralistic model in teaching their own children, which may then impede the children. I think it is too complicated; you always end up discussing it on the level of what the latest O.E.O. guidelines are all about.

Nimnicht: I don't think you can deal with it in a very superficial way. The parents are different. You're right: there's a real mystique, now. The parents have all the answers. It's an interesting thing, if you invite unindoctrinated parents in, they tend to say that education is good and they talk in cliches. If you work with parents for six months to help them understand what they're doing, then people say they aren't any good to you any longer because you've incorporated them into the system. So you get into all of these kinds of subtleties. In each one of these things, as you start to track through, also is seen to be tied up with the whole political-social system. I don't see it's becoming a reality very fast right now. Nevertheless, I think it is worth presenting this perspective to get more people thinking about evaluating different things in different ways rather than accepting as a given fact that we have already got all of these things in the schools, and that we should go on using them until we get something better. I have a feeling that so long as we go on using them we are never going to get anything better.

Meyer: Your comments about first vs. second language, specifically with respect to Chicano kids, and the combinations you use for the possible things that might be done for the kids, like make them read in English and test them in Spanish, etc. were very neat. There is some evidence,

such as that which Marie Hughes reported from Tucson, which suggests that a good predictor of who's going to be a good reader in English is he who reads pretty well in Spanish, or he who has more sophistication in English also has more sophistication in Spanish, which I think raises another kind of problem for the educational system. It may not be just a matter of the kinds of things that you are saying -- we train on X and test on Y. Do you have other data that would support or not support that general conclusion?

Nimnicht: In Greeley, where I worked with primarily Mexican-American children, the child came to school with either some proficiency in English or some proficiency in Spanish; now I don't know that that tells you where to jump. It doesn't say, therefore, to teach Spanish first or to teach English first. At that point the parents also were saying "We don't care about our kids' speaking Spanish: we want our kids speaking English; to hell with the cultural stuff." I have decided that this may well be;"culture" is a luxury. It is something that people become very interested in and very concerned about for themselves and their people after they are eating and after they have shelter; "culture" is not their first priority. I don't think that gives me a license to accept that parent's statement and to operate only on that. This is where we are getting into the subtleties that were referred to earlier.

Baratz: I think one of the difficulties is that we are talking about "Culture" with a big "C", and I think that in the school setting we need to talk about "culture" with a little "c". All children come to school with a high degree of English or a high degree of Spanish: it may not be a standard English or a standard Spanish, and those who have a non-standard variety

are usually carriers of other aspects of the culture. The non-standard language does not exist by itself. It usually has the concommitants of the extended family, of the orientation related to time, related toward success: all of these things are a package. In terms of very micro behaviors, whether or not you touch the kid or don't touch the kid, in terms of how you stand in front of them — all these things we haven't touched upon but that communicate, or mis-communicate, to the kids so that he's reading them incorrectly. This is the little "c" I think that the school has to deal with, rather than that big "C" of whether it was Columbus or whoever discovered America. That is the luxury, rather than the other, that feeds into the learning, which I don't see being discussed, much less being evaluated.

Nimmicht: Here's where the complications come in. I buy the little "c" notion, but then you go on to the next step which says that culture is a dynamic and changing thing; so, even in the little "c" you don't have a static thing. You can not teach a particular culture as though it were definite and finite. I don't know what you mean by the evaluation; I don't see any difference in evaluation being done now from that five-ten years ago. It's got to change or we're not going anywhere. I use the curriculum example because I find it is hard enough to communicate the notion to many people. I don't see it as an end in itself; it is the beginning of an understanding that you do come with a pretty narrow perspective in terms of a frame of reference, and when you try to impose that on someone else you are making some serious errors in judgments. I find it shocking that our text books for young kids still are New England

and upper New York state so far as pictures, orientation, and presentation. Very little has happened to relate differently to kids, and these are still being used as though they are the best way to help kids learn to read. At a very gross level I see a multitude of problems without worrying about refinements.

Pollack: Let's pursue the language issue. It strikes me that in Europe for generations that they have been teaching children several languages, and that the children have been able to operate reasonably well in two or three or sometimes four without any trauma. They may be accented so that you can tell where people come from, but they are able to communicate adequately and to read in two or three languages. To learn other languages seems to be a particular Anglo-Saxon weakness; the English and perhaps the French don't want to learn anything else. For example, there's work in Yugloslavia now where they have two alphabets: Roman and Cyrillic. Half the population learn Cyrillic first and then Roman and the other half learn Roman first and Cyrillic later, and they can't find any differences between them.

Nimnicht: You have another thing here: when you start digging into this language business, different languages take on different degrees of respectability in our culture: French, German, Italian. It's been a long time getting the Spanish language accepted as an adequate language for a doctoral program. People start to assign values and they value one language over another, which gets back to the very points I am trying to make. I don't think we would have the problem we have in terms of various forms of black dialect if we didn't assign the kinds of values we do. We say the language we use in the school is inherently superior to the language

that the child brings to the school. I think that's one of our biggest problems -- the perspective we view it in. I don't think it's a learning problem.

Love: To devise individualized instruction programs you must have in mind certain groups or kinds of people that each of these different curricula will serve --- Are these the kinds of group differentiations you want to construct curricula for?

Nimnicht: I don't want to construct curricula for them, in that sense. One of the problems we have in the Follow Through idea of model programs is the notion that I can sit in Berkeley, California and design a model program that will work in Berkeley, in Cleveland, and in Sumpter, and so on. With all sorts of different children coming from different backgrounds, I think it's a false notion. I can set down some general notions about education, some general ways to proceed, and then work from within that frame of reference; but I can't design the curricula for all these people. Perhaps I can help them see a process where they can start to make adjustments themselves, in terms of working with each different group of kids, but certainly I can't see you come up with "a national" curriculum with 15 variations.

Love: So "sorts of children" is the key word I was picking up. You still have to identify one sort from another, if you are planning different treatments. I am curious about how these sorts are defined. Is this sort of the question of culture with the big "C"?

Nimnicht: The notion of culture, to me, starts to stereotype people as soon as you start to assign people to different cultural groups.

Love: This is where I have trouble with individualized instruction programs. You have to design a standard to make some differentiation with the population you are serving. You are saying this kind of treatment works better for this kind of person. Unless you can decide among those treatments and among those kinds of people, you have to use the same treatment, or guess in some fashion where there is an appropriate match. Whenever you do that kind of matching operation, you are dealing with certain ranges or types of individual differences within a person, as corresponding or being most comparative with different kinds of treatments.

Nimnicht: I think there are some generalizations that we can make about native Americans. Then I think you have to state that when you are talking about Crow Indians as a tribal group. If that's the population you are talking about, then I think the thing that is probably more significant than any particular curriculum is the attitude and understanding that the person has who is working with those children. That is where I think you have to get to, the kind of refinement that I was expressing. I don't see us getting there very fast. I don't see that we will ever get a perfect match.

Love: I don't quite understand why you are still using national grouping or place of origin, or ethnicity as your basis for differentiation.

Nimnicht: I see great differences between Crow people and native Americans, and even greater differences between Crow people and people, in general, in the United States. That's the reason I make that kind of distinction.

Love: The difference is the perspectives that you want to enhance among your school populations. There's a difference that maps onto nationalizing rather than onto people of similar kinds of experience.

Glasersfeld: I would like to get back to the language question. I think it could be said that the Spanish, Portuguese, or Navaho child who goes to school in the United States learns English as a second language. I think that is perfectly true, but it has to be added, that that is a second language of a very special kind: it's an academic language. It is not at all comparable to the child in Europe that grows up with two languages. The main difference, I think, is that the child in Europe is motivated to communicate in both. The second language is very much the same sort of thing that we all learned in school. Someone can get an A in Russian or in Chinese or in Spanish in an American University and with that, academically speaking, he knows the language. Let him go to the country...

Charlesworth: I go along with that because it is very different. Take Czechslovakia, for example. Under the Hapsburg empire, if you were a Czech you had to know German and so on. Now, you must know Russian; everybody 25 and under is speaking Russian. You get a very powerful motive to speak that other language whether you like it or not. In America, English is the one, and if you take 600 million people speaking English it would be important for someone living on this continent to know it.

Nimnicht: The other obvious implications of your comments is that people still go right back and evaluate that child as though it were more than an academic language, as though he were speaking it on the streets. This

is where I think our evaluation system becomes grossly unfair to large numbers of people; they are not taking the differences that you mentioned into account, and they draw erroneous conclusions as a result of it.

Smock: Glen, I must say, that one could argue that it's not the evaluation instrument, but it's the program that is at fault. The program is at fault for not recognizing the phenomenon, therefore generating a language program in the school that allows the individuals to communicate, which is what the test tests. Too often we slide over this and think it's the instruments' fault when really, in many cases, the instruments, conceptually, are much better grounded in the knowledge we have than the programs which produce the low scores.

Nimnicht: That comes back, partially, to a previous answer. In order to get the kinds of programs you are talking about, the school has to do a more careful analysis of who the kids are it's trying to serve. That is where it has to start; we are not doing that. Instead, we are looking for something from within; this is not going to lead us to productive answer on programs.

Smock: And again you see, what I'm trying to say, is that it may not be the instrument, it may not be the kid, it may not be the home; it might be the school.

Baratz: Although it may appear that educators are applied social scientists, I think probably the most effective applied social scientists are politicians and advertising agents, because they don't have to deal and get confounded by what Mr. Charlesworth talked about, about the way the world

should be. They deal with the way the world is, and the way the world "is" is that there are ethnic groups. There are social class groups, and they do have to be responded to differently. The guy in New York who has to sell Ultrasheen and Kosher frankfurters and Pizza, might like to expand his market so that many different groups are using various products. He knows on what buses or subways to put the Ultrasheen ads. Their evaluation is not academic. He has to produce or he goes out of business.